A FRAMEWORK FOR TEACHERS IN EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR UPPER ELEMENTARY GRADES IN THE FAIRBANKS NORTH STAR BOROUGH SCHOOL DISTRICT

By

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Education for Sustainable development in k-8 Interior Alaska Schools

Abstract

Education for Sustainable Development (ESD) is a holistic approach to education that seeks to create a better world for this generation and the next. The aim of ESD is for students to gain knowledge, skills, attitudes and values that will shape the planet for a sustainable future. The United Nations has adopted 17 Global Goals as a "universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030" (United Nations Development Program, 2020, para. 1). Models for sustainability look very different depending on where one lives. The context of this work is Alaska, and more specifically the Fairbanks North Star Borough. The purpose of this project is to build a website resource to aid teachers in developing a mindset toward ESD and provide locally relevant resources and curriculum aligned with the United Nations Global Goals. This project is guided by the question of how Indigenous Ways of Knowing & Culturally responsive practices can be incorporated into curriculum development alongside district standards and ESD competencies. The methods of this project seek to engage students by incorporating real-world challenges and authentic experiences into core subject areas allowing students to connect classroom learning to real life, and thus creating engaged citizens. The aims are for students to become environmentally aware, while developing life-skills including leadership, communication, collaboration, and management. By developing a sense of place and equipping students with environmental knowledge and skills they can excel at living lives which further humanity while caring for and respecting our planet and it's resources.

Education for Sustainable development in k-8 Interior Alaska Schools

Table of Contents

Education for Sustainable development in k-8 Interior Alaska Schools

Introduction/Statement of Focus

Humanity faces a myriad of global challenges; therefore, survival depends on our ability to sustain the natural environment and our planet's resources, while still developing wealth and well-being for a growing population. This is a monumental task and one that is defined by sustainable development; and therefore education is the key. The purpose of this project is to provide a framework for teachers to integrate Education for Sustainable Development (ESD) into their teaching practice and existing district curriculum. This project will provide a resource for teachers to continue professional development in the field of ESD and will include units of study that foster key competencies in ESD, and Indigenous pedagogies to develop a local sense of place. The framework and professional development will be tailored for teachers working in the Fairbanks North Star Borough School District, in the upper elementary grades 4th through 6th, but could easily be modified for older or younger students as well as other school districts. The following questions guide this project:

Guiding Questions:

1. How can teachers and students develop a mindset toward sustainability?
2. What does sustainability look like at the local level in the Fairbanks Northstar Borough (FNSB)?
3. How can Indigenous Ways of Knowing & Culturally Responsive practices be incorporated into curriculum development?
4. How can education for sustainable development be integrated into Fairbanks North Star Borough curriculum?

Education for Sustainable development in k-8 Interior Alaska Schools

Rationale

The youth of today will be the leaders of tomorrow, tasked with continuing to address the social and ecological issues arising from our rapidly changing climate (U.S. Global Change Research Program, 2018). Educating the next generation on pathways toward a more sustainable way of life is of paramount importance. Education with emphasis on sustainability aims to prepare the next generation to solve problems in a complex and ever-changing world. As a teacher I often ask myself, "What am I teaching for?" This is the question that drives my teaching practice.

According to the Fourth National Climate Assessment (2018), the Arctic's annual average temperatures have increased more than twice as fast as the global average. This translates to thawing permafrost, as well as loss of sea ice and glacier mass, which will only result in further amplifying warming significantly. This will have major systemic repercussions (U.S. Global Change Research Program, 2018). James Elder's analogy on climate action sums up the state of current affairs.

> What strange times we live in. Humanity is residing in a ship of sorts, this planet Earth, which has sprung a huge leak. By chance some of us occupy rooms near the damage, or somehow have seen or heard evidence of the leak. Yet by and large we sail blithely on, full steam ahead, the band playing as though it were business as usual. Water floods the hold, undermining the entire system of human life so elaborately built up over our entire civilization, not to mention the life of many other species. Yet we act as if we had all the time in the world. One would think that academia would be one of the most perceptive passengers on this ship. Thus, it should be one of the first to sound the alarm. But by and large all we hear is silence from this quarter. (Corcoran, Elder, & Tchen, 1998, p. 6)

Education for Sustainable development in k-8 Interior Alaska Schools

Climate change is one of the biggest existential threats we face today and it is our youth that will bear the greatest burden (USGCRP, 2018). This can be overwhelming; therefore, it is important that students feel empowered and equipped to become educated and to make a difference (Stevenson & Peterson, 2016). I believe education for sustainable development is a path that will lead students there. This is the journey I have taken in both my personal and professional life.

Twenty years ago, when deciding what undergraduate degree program to pursue, I chose biology because I had a desire to understand the natural world around me. I knew, ultimately, I wanted to be a teacher but felt pursuing a degree in biology would fulfil my personal interest and provide me a solid foundation in the sciences for my future career as a teacher. Thus, I received my Bachelor of Science degree in Biological Sciences from UAF. During this time, I started raising a family and building a farm, fulfilling my interest in and fascination with living off the land. Therefore, I have dedicated much of my life to learning some of the skills necessary for living more sustainably. In 2015, I completed UAF's Post Bac Teacher Certification program, and then started teaching upper elementary grades 4^{th}-6^{th} in 2016. In the summer of 2017, I attended Arizona State University's (ASU) National Sustainability Teachers Academy (Arizona State University, 2020). This is where I was first introduced to Education for Sustainable Development (ESD), and immediately knew it was the path I wanted my professional career to take. In 2018, I attended ASU's Circular Economy Academy where I was introduced to ideas for changing the way we think about products and waste.

I believe weaving this work into the fabric of the education system will aid in recasting futures. Education for Sustainable Development is essentially environmental education with a

social justice lens (Armstrong, 2011). I, wholeheartedly, believe in teaching to the whole child. Education for sustainability (EFS) is teaching to the whole problem.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has initiated work to "reorient teacher education towards sustainability" (Education for Sustainable Development, 2017, para. 2), but the work does not speak specifically to issues in Alaska . This project provides a place-based resource in the field of Education for Sustainable Development that facilitates educators to integrate, in cooperation with their students, ESD into existing Fairbanks North Star Borough School District curricula, standards and teaching practices.

In 2018 the Fairbanks North Star Borough School District began restructuring schools, classrooms and instruction toward personalized learning. This shift creates a student-centered environment that engages students and empowers them to reach their highest potential based on their unique strengths and needs, which better prepares them for the future (Fairbanks North Star Borough School District, 2019). While personalized learning centers around the individual, and ESD emphasizes group learning and community, they are both project oriented, student-centered models. There is also a trend in this district toward culturally responsive schools, as this was the theme for the district's 2019 fall professional development inservice for teachers. In Alaska teachers are responsible for using Alaska's culturally responsive curriculum standards which emphasize local learning and action in a global context. Thus, I believe ESD and this project will align well with current trends in the district.

Theoretical Perspective/Literature Review

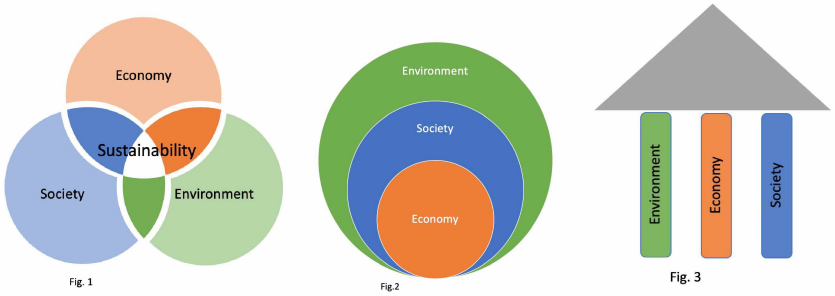
Defining Sustainability and Education for Sustainable Development (ESD)

Education for Sustainable development in k-8 Interior Alaska Schools

Sustainable development has been defined in many ways, but the most commonly quoted definition comes from The World Commission on Environment and Development from their 1987 work, *Our Common Future*, also known as the Brundtland Report. Sustainable Development is defined as: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p. 39). This definition has since been broadened to include three key principles:

1. Understanding of the interrelation between environment, economy and society.
2. Fair distribution of natural resources and equal opportunities not only for the present generation but also for future generations.
3. Limitation of human activities within the holding capacity of the planet (Spiropolou, Antonakaki, Kontaxaki & Bouras, 2007, p. 444)

The most common models for describing the tripartite definition of sustainability which includes: society, environment and economy, are often graphically presented as below:



(Figures 1, 2 & 3 Graphic representations of tripartite models of sustainability. Adapted from "Three Pillars of Sustainability: in search of conceptual origins," by Purvis, B., Y., & Robinson, D., 2019, *Sustainability Science,* p. 682.)

Interpretation of these models has been noted to be somewhat unclear in the literature (Purvis, Mao & Robinson, 2019). Figure 1 represents a balance necessary for policy making and problem solving in the field of sustainability, where solutions become viable when not dominated by one viewpoint, with sustainability at the center. However, Fig. 2, the diagram with the circles nested inside one another show the outer and largest circle as the environment, which symbolizes the importance of the environment as the foundation for a healthy society, and in turn a healthy economy. Figure 3 is often called the pillars of sustainability, and it shows the importance of all three pillars in solutions to sustainability issues. These pillars have also been referred to as people, planet and profits (Purvis, Mao & Robinson, 2019). While these graphics are helpful, they are still vague and simplistic representations of sustainability. A more thorough model of sustainability would include strong governance, effective institutions, social welfare, responsible economy, environmental protection, application of innovation, appropriate technology and education (Scoullos & Malotidi, 2004, p. 23). According to Chapin (2011) from the University of Alaska Fairbanks, sustainability pathways involve fostering earth stewardship which has the goal "not to protect nature from people; rather to protect nature for human welfare" (p. 1). This requires the building of partnerships across disciplines and professions that, in turn, can draw off local knowledge and foster bottom-up solutions to sustainability issues. Another key to solving these complex problems is understanding the interdependence of human welfare to ecological systems, and how these two systems seem to be at odds with another, where people's immediate desires and needs take precedence over the long term (Chapin et al., 2011). This brings importance to looking at sustainability through the lens of social justice.

Education for Sustainable development in k-8 Interior Alaska Schools

The United Nations Educational, Scientific and Cultural Organization (2013), has developed a "blueprint for peace and prosperity for people and the planet, now and in the future" with 17 Global Goals at the heart of it:

1. No Poverty
2. Zero Hunger
3. Good Health and Well-being
4. Quality Education
5. Gender Equality
6. Clean Water and Sanitation
7. Affordable and Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation and Infrastructure
10. Reduced Inequalities
11. Sustainable Cities and Communities
12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
15. Life on Land
16. Peace, Justice and Strong Institutions
17. Partnerships for the Goals.

These goals will be used to develop curriculum, generate book club titles and compile resources for this project. Lessons will often overlap with more than one goal. While these goals

are distinctly numbered, they are in fact interrelated and quite complex. Issues related to sustainability are often called "wicked problems" for the following reasons:

- They are problems that are socially complex.
- There is no definitive formula for solving them, so there are endless possible approaches.
- There is no clear endpoint or solution, and possible solutions can come with unintended or unforeseeable future consequences.
- They are essentially the symptoms of other problems, and the effects of solutions can be irreversible. (Rittel & Webber, 1973, p.161)

Diving deep into each one of these goals through world statistics can unveil a devastating reality. As teachers, we don't want to throw the weight of the world's problems on our young students. Sobel (1998) noted this as a potential pitfall in environmental education that could lead to "ecophobia" a term defined as "a fear of ecological problems and the natural world" (p. 1). It is important that we foster young children's connections to nature and the environment first, as opposed to focusing on world environmental atrocities such as: oil spills, rainforest destruction, acid rain, and in more recent years, climate change. I believe this concept also holds true in the area of social justice issues related to sustainability as well. We want to nurture students' natural desire to make the world a better place, and look at sustainability through a solutions lens.

Through this complexity it becomes clear that an exact definition of sustainable development is difficult to achieve, as concepts of sustainability are continually evolving, extremely locally dependent, and should be open to systemic investigations that allow for critical thinking and perspectives for change (Scoullos & Malotidi, 2004). Therefore, the given definitions become only a baseline to work from, and foundation for creative solutions.

Education for Sustainable development in k-8 Interior Alaska Schools

Education for Sustainable Development (ESD) is essentially an evolved form of environmental literacy or "environmental education" which places emphasis on the development of students as citizens and stewards of the earth who have knowledge, skills and values that support sustainable behavior, civic behavior as well as a better quality of life (Armstrong, 2011; Spiropolou, et al., 2007). ESD is a model that can look very different depending on where one lives; therefore, it directly connects to place, and in particular developing one's sense of place.

Sense of Place

In the context of studying place, Koushik, (2016), Creswell (2009), and Agnew (2011) outline place from 3 aspects: location, locale and sense of place. *Location* is the actual location of a place on earth; the specific coordinates as a measurable location (Agnew, 2011, p. 1). *Locale* is the material setting for social relations; such as the layout of where one lives (i.e., parks, buildings, streets) (Agnew, 2011,p. 1). The third, but most important, is one's *Sense of place*. This is the attachment that people have to place; one's feelings and emotions about place (Koushik, 2016, p. 9). This is often called humanistic geography, and holds the notion that experience lies at the heart of developing a strong sense of place (Cresswell, 2009).

Marc Auge (1995), a French anthropologist, argued that in the modern world, there is a continuum of attitude toward place, with a traditional place view at one end, which is a kind of organic, rooted, and ecologically-based way of thinking about place, and location. This type of place is generally full of meaning to which people become profoundly attached. And at the other end of the spectrum is what he coins "supermodernity or nonplace," which is marked with an overall lack of attachment (Creswell, 2009, p.6). This is the direction that the modern world is headed and can be linked to three characteristics: communication, mobility and consumerism

(Cresswell, 2009, p. 6). First, humans are constantly bombarded with communication in the form of texts, screens, and signs which act to facilitate relationships between people and places as opposed to creating direct relationships (Cresswell, 2009, p. 6). Next, there is a huge surge in mobility, with a plethora of roadways, service stations, airports and general places of transit that keep people from stopping to linger and ultimately creating roots (Cresswell, 2009. p. 6). The third characteristic is consumerism. We now live in a world of mass production, fast food industries, huge shopping malls, and landfills. All of this exposure can lead to individualism and withdrawal, with humans ultimately, failing to make sustained social relationships (Cresswell, 2009, p .6). Takano, Higgens and Mclaughlin (2009) add to the discourse with concern about detachment from both place and the natural environment. Expressing that in industrial nations, this disconnection is often partly tied to peoples' exploitative attitude toward the natural environment (Takano, 2009, p. 342). People become separated from nature but seek to command it. Place-based education is rooted in environmental education and reclaims developing a sense of place as a central component of public education (Takano, Higgens, Mclaughlin, 2009, p. 342). Koushik (2016) argues that sense of place is the critical element to creating "environmentally conscious and responsive citizenry (p. 9)".

These concepts of place and sense of place were contextualized in education settings through Place-Based Education (PBE). Place-Based Education (PBE) is defined by David Sobel (2005) as the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science and other subjects across the curriculum. This approach puts emphasis on hands-on, real-world, authentic learning experiences (p. 11). The intent is to improve academic achievement while helping students build stronger ties to

their community, and an appreciation for the natural world. This, in turn, creates students with heightened commitments towards citizenship.

Place Based Education (PBE) and Education for Sustainable Development (ESD)

Gruenewald & Smith (2008) suggest that connecting children to nature and allowing for developing an appreciation for places, youth begin to "understand and question forces that shape place; therefore, they develop a readiness for social action, and then skills for democratic participation (p. xx)". Ontong and La Grange (2014) look at ESD as a frame of mind, that is directly connected to place, in which one develops a relationship with nature, in an open and responsive way. Therefore, place-based education is directly in line with education that supports sustainable development. The idea is for students to connect with nature, better care for themselves, each other and the places in which they live, work and play. In the context of this work in Alaska, and more specifically Interior Alaska, the connection between self, community, and place is emphasized in my place-based curricular approaches.

PBE and Indigenous ways of knowing

In Alaska, there are 229 federally recognized tribes with distinct and diverse cultures, traditions, language systems and Indigenous knowledge that continue to thrive and adapt to the modern world. These cultures have lived a rich traditional subsistence lifestyle of hunting, fishing and gathering food, for thousands of years (Alaska Federation of Natives, 2020). Place has a special significance to the lives and meanings of Indigenous people. The United Nations recognizes that respect for Indigenouns Knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment (United Nations General Assembly, 2007, p. 4).

Education for Sustainable development in k-8 Interior Alaska Schools

It is important to recognize the negative feedback that multiple generations of Alaska Native people have had in relationship with external systems that have been forced on them, such as Western education and economic systems. These exposures have marginalized their knowledge systems, and continue to contribute to erosions of cultural integrity (Barnhardt & Kawagley, 2005, p.13). Although Alaska Native communities have and continue to be subjected to colonial forces or are forced to comply with Western Systems, much of their Native knowledge systems, and worldviews remain intact and in practice throughout Alaska. According to Barnhardt & Kawagley (2005) there is a growing appreciation for the contribution that Indigenous Knowledge systems can make in modern society and in the sciences, especially as we address climate change and the abrupt and swift changes happening in the circumpolar north (p. 13). This will be of great benefit as we look for new, meaningful and satisfying ways to live sustainably on the planet and in the North. Therefore, in my effort to integrate ESD into Interior Alaskan classrooms, it is critical that Indigenous scientific and cultural knowledge is integrated into the curriculum. Illarion Merculieff and Libby Roderick (2013) have identified teaching strategies or Indigenous pedagogies that are common to many of the traditional Alaska Native cultures. They are as follows:

1. Learning at an **Earth-based Pace,** this is also called nature-based as life is synchronized around the seasons and natural cycles. This requires patience, timing and experience to understand at the deepest level (p. 18).
2. **Attending to Relationships**, teaching and learning occurs within the larger context of family, village, tribe, clan, homeground, and history. There is an awareness of the continuous relationship to everything and everyone else with intent to maintain harmonious and balanced relationships with all creation (p. 18).

3. **Place-Based Knowledge,** is a deep and detailed knowledge of place in the sense of belonging to, identification with and awareness of everything that goes on in place as essential. Being able to read the weather, terrain, water, vegetation and behavior patterns of fish and wildlife the more safe and successful you are (p. 19).
4. **Learning as a Group,** traditional native life involves working and interacting as a group. The welfare of the group is more important than that of the individual. This requires cooperation and cohesion for the greater good (p. 20).
5. **Learning from Elders,** Elders in the community are recognized for their, "wisdom and integrity. their knowledge of traditional values and practices, and their deep connections to all of creation. This is acquired through life experience, attentive listening, and deep understanding of the value and purposes of traditional ways" (p. 18). **Close observation**, teaching is done through demonstration, and learners observe, emulate, experiment and reason on their own. The key directive is to watch learn and listen (p. 21).
6. **Indirect teaching**, as to not harm self confidence and slow the learning process, no or little direct verbal feedback is given. The teacher may tell a story, or tease in a way that leads the learner in the correct direction. Indirect approaches are seen as more respectful, and allows the learner to figure out things on their own (p. 21).
7. **Silence and reflection,** true listening requires one to silence their mind, give the speaker full attention, listen without agenda and take in the speaker's full truth. This is finished with a pause for silence and reflection. Giving the listeners time to make meaning of their experience (p. 22).

8. **Experiential Learning**, this type of learning uses all of the senses: sight, hearing, taste, touch, smell as well as intuition and gut feelings. Learners are engaged in physical activities that require "cooperation, collaboration, attentiveness to detail, memory and skill development (p. 23).
9. **Visual/non-verbal**, this is an astute awareness of one's environment. The ability to read weather through observations, and awareness of plants and animals health, abundance and changes over time. Current Knowledge is connected to long term memories passed on through generations (p. 24).
10. **Storytelling/humor**, through stories the teacher can convey survival information, share cultural information, as well as correct disruptive behaviours. Lessons through story are often better accepted and remembered. (p. 25). **Dance and games**, this involves full physical movement which can connect the intellect to the body. Physical movement can be part of passing down stories and histories, an aid to memorization, and a tool to convey proper techniques. As well as build connection to community and cooperation. (p. 25).

These teaching practices or pedagogies align well with ESD, and in this curriculum project, I attempted to braid these Indigenous pedagogies throughout the lessons and teaching resources. It is also important to look at knowledge generation through exploration of theoretical perspectives and epistemologies that are associated with ESD.

Theoretical Perspectives of ESD

The heart of ESD lies in a constructivist paradigm for teaching and learning. The core tenet of constructivism is that learners actively create their own knowledge and meaning from

experiences, beliefs, values, cognitive processes and environment (Schunk, 2008). Armstrong (2011) dives deeper into the continuum of constructivist theory to argue that ESD is best suited with a dialectical constructivist paradigm, which is located between endogenous and exogenous constructivism, but leans more toward exogenous (p. 12).

Endogenous constructivism draws off of Jean Piaget's "Cognitive Development Theory", which emphasizes internal cognitive processes, with new knowledge being dependent on previously developed mental structures. Therefore, knowledge creation is associated with actions and operations taken by the individual in situations encountered (Armstrong, 2011, p. 9). Central to Piaget's theory is the development of schemata. This stems around the idea that situations in the environment can create contradictions to what one does and thinks; this, in turn, throws them off balance forcing the individual to create a new schema or intelligence. Piaget's work focuses on children and proposes discrete stages of development (Mcleod, 2016). In relation to ESD this speaks directly to the conflict and contradictions of issues of sustainability and the importance of developmentally appropriate instruction.

Exogenous constructivism places emphasis on the influence of the external world on construction of knowledge and draws from the work of Albert Bandura and "Social Cognitive Theory" (Mcleod, 2016). Bandura's work emphasizes what influences social behavior and how individuals internalize values, attitudes and behaviors in social culture (Armstrong, 2011, p. 10). One of the main tenets of Bandura's theory is observational learning and modeling. Children observe the people around them, and are influenced by them as a model. At later times they may imitate the behaviors observed, in this case children are "active information processors" and think

about the relationship between behavior and consequences (Mcleod, 2016, para. 2). This informs the educator of the importance of modeling sustainable behavior in life and in the classroom.

Dialectical Constructivism is centered in the middle of endogenous and exogenous constructivism. This perspective is influenced by Lev Vygotsky's Social Development Theory of higher mental processes. This suggests that community plays a central role in the process of meaning making in that the individual cannot be understood without reference to the social and cultural context (Mcleod, 2016). Another fundamental piece of Vygotsky's work is the "Zone of Proximal Development" (ZPD), this refers to differences between what a child can achieve independently and what a child can achieve with guidance from a skilled partner (peer or adult) and what is ultimately just beyond reach (Mcleod, 2016). Armstrong (2011), refers to one's individual learning as "psuedoconcepts", which are learnings that occur naturally (p. 11). Scientific concepts are introduced by an instructor, and ZPD suggests that "psuedoconcepts" must be developed enough within the student in order to absorb the scientific concept (p. 11). In this case the instructor and learner are working in concert, with the instructor guiding the learner's misconceptions and preconceptions toward stronger principals and alternatives. Sustainability's complex, uncertain, social/cultural and value-laden nature is responsive to a dialectical perspective, and reaffirms the delicate nature of student readiness toward sustainability topics (Armstrong, 2011).

Constructivism examines ESD in the context of epistemology, as a philosophical explanation about the nature of learning. It is, therefore, influential in the classroom and guides classroom activities and pedagogy.

Pedagogical approaches toward ESD and competencies

Some of the strategies that underpin pedagogy for sustainability align with Indigenous pedagogy and require a shift toward active, participative and experiential learning methods that engage the learner to discover, understand, think, and then act (University of Plymouth, 2020). Constructivism, in this context, supports real authentic experiences, exploration of multiple perspectives, holistic instruction of broad concepts and social interactions (Schunk, 2008). Lauri, Nonoyama, Mckeown and Hopkins (2016) discuss how strategies associated with ESD can contribute to quality education (p. 227). Education in the 21st century is no longer about fact acquisition. Therefore, students need to know what to do with all the information available to them; learn how to analyze it and then make sense of its abundance and complexity (Lauri et al., 2016, p. 227). This is where competencies come in.

Sustainability competencies are defined as "a functionally linked complex of knowledge, skills, and attitudes that enable successful task performance and problem solving with respect to real-world sustainability problems, challenges, and opportunities (Weik, Withycombe & Redman, 2011 p.242)". Competencies are typically generalized and abstract but link to learning objectives/outcomes which are more detailed and specific. Competencies are becoming more commonly used in curriculum development. While there isn't one set in stone set of competencies for ESD, the following eight seem to be present in most of the literature.

Systems thinking, which is the ability to recognize and understand relationships, to analyze complex systems, to perceive the ways in which systems are embedded within different domains (society, environment, economy) and different scales (local to global) and to deal with uncertainty (Reickmann, 2018, p.43). At the elementary level this is seeking to understand the big picture, seeing patterns and trends in systems, identifying the circular nature of complex cause and

effect relationships, and resisting making quick conclusions (The Waters Center for Systems Thinking, 2020).

Futures Thinking, the ability to understand and evaluate multiple futures- possible, probable and desirable- and create one's own visions for the future, to apply the precautionary principle, to assess the consequences of actions, and to deal with risk and changes (Reickmann, 2018. p. 43). This is about modeling the process of foresight to insight to action, it is about seeing new possibilities for the future, and creating agency for the kind of future we want (Gorbis, 2019).

Strategic Thinking Competency, is the ability to collectively develop and implement innovative actions that further sustainability at the local level and further. (Reickmann, 2018.p.43) It is the ability to create strategies that avoid undesirable scenarios and realize sustainable visions and the ability to look at problems from a multi-generational perspective (Warren, Archambault, Foley, 2014).

Values or Normative Thinking, this is the ability to "reflect on the norms and values that underlie one's actions and to negotiate sustainability values, principles, goals and targets, in a context of conflicts of interest and trade offs, uncertain knowledge and contradictions. (Rieckmann, 2018, p.43)". Students need to be aware of the effects our values have on our decisions, recognize that different people have different values, and seek different points of view (Komasinski & Gakushi, 2017).

Collaboration or Interpersonal competency, this is the ability to learn from others. To understand and respect the needs, perspective and actions of others, basically to have empathy. It also requires one to understand, relate to and be sensitive to others, showing empathetic leadership. (Reickman, 2018, p.43)".

Critical Thinking Competency, the ability to question norms, practices, and opinions, reflect on one's values, perceptions and actions, and take a position in the sustainability discussion. (Reickman, 2018, p.44). This can be achieved with the higher level of thinking associated with Bloom's Taxonomy: analysing, synthesizing and evaluating.

Self Awareness Competency, the ability to reflect on one's own role in the local community and continually evaluate one's actions and deal with one's feelings and desires (Reickman, 2018.p. 45).

Integrated Problem Solving, this is the ability to apply different problem-solving frameworks to complex problems, to come up with viable, inclusive and equitable solutions, along with the ability to integrate all of the other competencies mentioned in the problem-solving process (Reickman, 2018.p.45). According to Weik (2011), developing sustainability competencies are key to sustainability efforts.

ESD in Interior Alaska

In October of 2017 the Fairbanks Northstar Borough Assembly established the Sustainability Commission with the defined purpose to:

> provide leadership to ensure a secure and sustainable community development plan that maximizes public health, safety, self-reliance and welfare within the powers of the borough; and to lead a public process to identify sustainability goals for the borough and select metrics for monitoring progress toward meeting those goals. (FNSB Sustainability Commission, 2018, p.1).

As liaison for the commission, I was a part of the sustainability goals process. After two town hall meetings, the commission agreed to focus on:

Education for Sustainable development in k-8 Interior Alaska Schools

1. **Food security**- having access to enough food at all times to meet the nutritional needs for physical health.
2. **Energy security**-the ability of residential and community energy systems to function optimally, reliably, and sustainably
3. **Waste reduction**- action taken to reduce solid waste toxicity or disposal, including 1) manufacturers' redesign and management of products and packaging to extend product life, and facilitating repair: 2) consumers' reduced purchase and consumption of products that become wastes; and 3) manufacturers' and consumers' reuse of products (FNSB Sustainability Commission, 2018, p.14).

In the plan, they have generated a series of indicators and goals to track progress and report to the Mayor. During the public process and within the commission the need for education for sustainable development was targeted as key for this success.

In my search for literature in the Interior, specifically on education for sustainable development, I encountered only one project- *Cultivating Sustainability Pedagogy through Participatory Action Research in Interior Alaska*, by Laura Henry-Stone (2010). Her work fell in line with food security and emphasized the blend of Indigenous and Western knowledge in creating a food systems curriculum with Effie Kokrine Charter School (EKCS). Her research did not intend to measure or evaluate the sustainability of the food system, but at the time of the article she did not know of any plans to continue to develop the curriculum.

There is a great need for ESD professional development and curriculum resources focused specifically on Interior Alaska communities. Developing a resource that is accessible,

Education for Sustainable development in k-8 Interior Alaska Schools

inclusive, user friendly and collaborative will benefit educators, community members, and youth in the Fairbanks North Star Borough.

Methodology

For this project I have developed a web-based resource for teachers to support interest in learning about and teaching within the mindset of Education for Sustainable Development. I used Google Sites as a platform to create a website: https://sites.google.com/alaska.edu/esdinterioralaska/ This website has two purposes: first, teachers will be able to use the resource to learn more about education for sustainable development, Indigenous pedagogies and competencies that support ESD. The Second Part of the website provides resources, book club titles and curriculum aligned with the United Nations Global Goals.

When navigating the site, the home page introduces teachers to the overarching goals of Education for Sustainable Development, and the place based, culturally responsive nature of the work. A map of Indigenous Peoples and Languages of Alaska is present along with a link to Indigenous pedagogies and a lesson on colonization accompanied by a Land Acknowledgment.

In the fall of 2019 I participated in revising the FNSBSD social studies curriculum with a team of selected teachers. I worked with Sarah Finnell, a teacher from Pearl Creek Elementary, to work specifically on 5th grade curriculum. This work is currently being reviewed by the School Board and will likely be adopted for the 2020/2021 school year. Among this work standard 5C.5 states "Learn about Indigenous Land Acknowledgements as a recognition of the relationship between Indigenous peoples and the land, historically and currently". We conferred with Yatibaey Evans, the Director of Alaska Native Education, on the content and language of our work regarding Alaska Native culture and issues. The Tanana Chiefs Conference also contributed to the work

during the public comment period. I developed a land acknowledgement lesson to support this standard, which is a new addition to the curriculum. In the development of this lesson I received the words for the Land Acknowledgement from Ms. Finnel, who collaborated with an Indigenous family from her classroom the prior year. I taught a condensed version of this lesson to my students in the fall using the same texts, but in my newly developed lesson, I've added much more detail, including small group collaboration, more robust discussion questions, videos and assessment. I suggest this lesson be taught on Indigenous Peoples day in mid October to replace Columbus Day. Teachers can then forward onto the *Indigenous pedagogy* heading of the website.

In February of 2020, I attended part of a workshop at the University of Alaska Fairbanks, given by Ilarion (Larry) Merculieff and Libby Roderick. The purpose of this workshop was to introduce participants to traditional Alaska Native ways of teaching and learning and discuss culturally responsive ways to engage in research in and with Alaska Native communities. My focus is not on research, but I did come away with a better approach for developing my curriculum in a more culturally responsive way. I include Indigenous pedagogies from their book, *Stop Talking, Indigenous Ways of Teaching and learning and Difficult Dialogues in Higher Education* in this work. My goal in developing this curriculum is to incorporate these pedagogies into all lessons alongside the district standards and competencies in sustainability.

A big part of this work was developing the framework for teachers to be able to incorporate Indigenous pedagogies and sustainability competencies into their own curriculum design as well as provide lessons and units for them to use. Therefore, the next heading on my website is *ESD competencies*. These also came to me in the context of higher education but are relevant and usable at the upper elementary level. Wrapping my mind around these competencies

and pedagogies, and putting them in the context of elementary level work has really impacted who I am as a teacher. In a school day there are lots of moments to teach that are not part of planned lessons. It is those natural dialogues with students, those moments of genuine curiosity, and the questions they ask, that can provide meaningful learning moments. Internalizing these competencies and pedagogies has been an integral piece for me teaching within a sustainability mindset. Such approaches guide who I am as a teacher, a person and how I interact with my students. I hope that as teachers consider the lessons I am sharing with them, that they also take the time to reference the pedagogies and competencies and internalize them into their own practice.

Another important piece of this work is actually defining what sustainability is. The word sustainability is commonly used these days, but the definition is thought of as vague and unclear. I have created a *what is ESD* heading to help teachers understand basic concepts of sustainability and the general framework for how it is used in the context of education. I define it as "Education that empowers learners to take informed and responsible actions for environmental integrity, economic viability and a just society- for the present and future generations (UNESCO, 2017, para. 1)". Breaking this down further it is based on 5 pillars: "learning to know (a way of thinking), learning to be (a way of being), learning to live together (a way of co-existing), learning to do (a way of acting) and learning to transform oneself and society" (Oladottir, 2014). Another important piece to sustainability is to look at solutions through a tripartite model, which includes: the environment, society and economy, also called people, place & profit. In our class the signal for gathering attention is 3 fingers, to represent each of the pillars of sustainability society, economy and environment. I also have the UN Global Goals posted in the front of the classroom for regular reference.

The next heading on the menu bar is *Resources*. On this page teachers will see each of the 17 global goals and inside each goal there are three sections: Community Resources, Book Club Titles, and Video Resources. The *Community resource* section includes local agencies and nonprofit organizations that provide support services to the community and potential educational opportunities for professional development. The next section is *Book Club Titles* which will provide upper elementary chapter book selections that can be used implementing literacy circles and complimentary picture books, related to each of the goals. Eventually these book titles will also be linked to lessons and guided questions teachers can use in implementing the book club. The third section is *Video Resources.* Here teachers will find educational videos and when possible inspiring individuals including youth who have supported the goal.

The last heading is *Curriculum.* Teachers will again see the 17 global goals, but this time they are linked solely to curriculum. This section begins with an important note to teachers. At the upper elementary level, it is important that these goals are taught from a solutions perspective, and with emphasis on developing a relationship with place and nature, creating positive experiences with sustainability and the Global Goals. When I was first introduced to the goals, I taught a lesson where I had students working in pairs to research each of the goals. I looked over to find one student completely distraught. She was studying no poverty, and was feeling grief and hopelessness. I casually ended the lesson and realized this was an approach that was over stimulating and counter productive. This was an important lesson for me and one that continues to guide my curriculum development in this field.

When a Global Goal is clicked, teachers will find a definition for each goal and how the goal should be addressed at the upper elementary level. This section, as well as the resource page is

a continual work in progress, with curriculum continually added to and modified to be relevant for the Interior. In the lessons I developed Indigneous Pedagogies and ESD competencies are found alongside the district standards. This curriculum includes everything the teacher will need to implement the lessons, including activity sheets and assessments. The first lesson is an overall introduction to the Global Goals and concepts of sustainability. This lesson begins with a story passed down from the Paimuit people of Alaska, *When Raven Met the First Human Being.* This is a creation story that teaches humans they should not take more than they need, and should respect all other life. Next, there is a slide show that ends with students brainstorming projects that can be done in school or in the community related to the goals. This is done in the style of Participatory Action Research, a research method which seeks to understand the world by working collaboratively for change (Baum, MacDougall, & Smith, 2006). When implementing this lesson with my class, students developed a plan for action for both the community and the school.

For the community, my students chose to support the Fairbanks Food Bank and the Two Rivers Food Bank. Students have learned to bake bread in my class, and the first action agreed upon was to donate our bread to the Two Rivers food bank on a bi-weekly basis. Next, my students organized a school-wide empty bowls project. I contacted the University of Alaska Ceramics department and received a donation for clay, and use of the kilns. I taught my students how to make the bowls, and then groups of students from my class taught the other classes in the school. Three students joined me in transporting the bowls to the University and preparing them for the kiln. During our school/community wide Thanksgiving feast we offered bowls for donations and we earned just over $700 for the Fairbanks Food Bank. We also held a school wide canned food

drive, and delivered the cans to the Fairbanks Food Bank staying to pack boxes for Elders around the state.

For our school plan, students focused on school lunchroom waste. They started with food waste. They developed a slide show on composting and presented it to all of the other classes. We collected compost from school lunches only during the months with no snow on the ground, August, September and part of October. This was because of the large volume of food waste accumulated in a day, and concerns for attracting wildlife. We will be experimenting with solutions to solve this in the future. Students also started an aluminum can and plastic bottle recycling station in the lunchroom. A few students worked particularly hard on this project, and felt frustrated by the lack of support they received from a few students who were actively choosing not to recycle. We were still working through these problems when school let out early due to Covid-19 school closures.

The prior year of 2018, my class participated in a community action research citizen science project that monitored the abundance and condition of berries with a statewide network of youth, adults and UAF scientists. As a result of this work students developed an action plan to plant Honeyberry trees and rhubarb bushes on the school property. Ultimately, the honeyberries didn't make it, they were small seedlings at the time they were planted, and summer maintenance crews mowed them over, yet the hardy rhubarb has survived.

Another lesson I chose to develop is on Alaska's Economy in the context of history and geography. This lesson came about when I discovered my students' limited understanding of what the work economy means. We had been using the three finger signal (environment, economy and culture) to gain attention in the classroom, and when I asked who could tell me what the three

fingers stood for, I learned that they all knew it had to do with the global goals and sustainability. But to name what each finger stood for was more difficult. Some students knew the environment and culture, but they did not remember the economy. When I revealed the answer, I asked if anyone knew what the economy was? Only one person braved the room to squeak out, "money?" This is when I knew I needed to focus some energy into teaching this concept, and I developed the lesson Alaska's History, Geography and Economy. I have not yet tested this lesson with the class, but am super excited to do so. I collaborated with Amy Arnesson from Watershed school for the map component of the project. She also introduced me to the book *Adventures in the Alaska Economy.* This lesson begins reading the book and holding discussion groups, and culminates into a project where students will create their own business to buy, sell and trade goods. This lesson also leads into a new and innovative way to think about the economy in a more circular fashion that fits more closely with natural systems, unlike the current linear model. I was introduced to this concept at a summer academy at ASU, and am thrilled to have found a more integrated way to present the material. This lesson will be piloted next year and modifications will be made as necessary.

The final lesson I developed was Nature Nooks, Walks and Journaling. It has always been my intent to open up the walls of my classroom, and use the great outdoors as a tool for teaching. In this lesson, I have compiled many of the activities, and ideas I have been using to facilitate lessons and work with children outside, in the context of public school and the many standards teachers need to fit into a school year. I have piloted most of these lessons over the years, but newly added the idea of incorporating opinion writing, informational writing and creative writing into our nature journals. I have created the rubrics for this work, and will align the nature journal more closely with the language arts lessons in the future.

The remainder of the lessons included in this work come from local resources such as Green Stars Earth Day everyday curriculum and online resources. My goal is to engage more teachers into this work and open the resource and curriculum portion of the site as a collaborative project.

Statement of Bias:

I come to this work with a bias and skill set toward preservation of a natural environment, and living off the land. My natural curiosity and personal interests are in learning the structure and function of the flora and fauna and inhabitants of the Boreal forest and other wild areas. I realize not everyone is skilled, capable or interested in this area, and I need to keep this in mind as I develop curriculum to meet the needs of a diverse group of people.

I have lived in Fairbanks, Alaska for over 20 years, and consider this my home. However, I was not born here, it was a life choice. It is important also that I acknowledge my heritage in this work, because I am not an Alaska Native, but have focused my energy in creating a culturally-responsive curriculum.

Another, important piece to consider is the school where I work. Being situated on the outskirts of town, we are located in the midst of a variety of ecosystems just outside our doors, facilitating much of the work I do. This ease of wilderness access may not be available to all teachers, and I need to consider this when developing the outdoor education portion of my work.

I am also afforded flexibility from my administration to develop my own curriculum, and the freedom to teach the standards in a way that is reflective of my personal style. Not all teachers are as fortunate, and may need work that integrates more readily into existing curriculum.

Plans for Dissemination

Since attending ASU's week long Sustainability Teachers Academy, it has been my dream to provide a similar professional development experience for teachers in Alaska, and particularly, Interior Alaska. This workshop would provide a framework for teachers to align their practice with models of sustainability, while focusing on issues specifically relevant to the circumpolar north, and the communities in which we live.

Shortly after this first workshop, I was invited to give two separate professional development talks for teachers in our district. These were learning experiences for me. I recognized what I needed was a resource available for teachers to continue to explore ideas that they were beginning to develop. This is when I decided it was important that I build a website.

I am hoping to share this website at two different professional development workshops next fall. The overarching or "big idea" is to guide teachers towards incorporating ESD into Project based Learning or PBL, while still covering district standards. Through modeling a PBL project teachers will learn to develop a path to: launch, build knowledge, develop and critique, then present a project that encourages sustainability solutions.

The second opportunity comes from being part of the social studies curriculum development team. We have been asked to present the new curriculum guidelines to teachers at the professional inservice at the start of the school year. Sarah Finnell and myself will be presenting 5th grade materials. I purposefully designed many of my lessons to align with the new additions to the curriculum, and will offer it as a resource for interested teachers. My hope is that it will spur curiosity to pursue more information about the United Nations Global Goals, Indigenous pedagogy, and sustainability competencies.

My ultimate goal is to continue work on this project and hopefully, have it available for either coursework in the field of ESD, or my original idea of a weeklong workshop on Education for Sustainable Development in the Circumpolar North. I would like this to be a collaborative effort with teachers and professionals all contributing to this resource free for all.

References

About EE and why it matters. (n.d.). North American Association for Environmental Education Retrieved November 9, 2019, from https://naaee.org/about-us/about-ee-and-why-it-matters

Agnew, J. (2011). *Handbook of geographical knowledge* (Vols. chapter 23).

Alaska Federation of Natives (Ed.). (2020). *Alaska Native peoples*. Retrieved January 10, 2020, from https://www.nativefederation.org/alaska-native-peoples/

Alaska's education challenge (Department of Education & Early Development, Comp.). (2017). Retrieved from https://education.alaska.gov/akedchallenge

Armstrong, C. M. (2011). Implementing education for sustainable development: The potential use of time-honored pedagogical practice from the progressive era of education. *Journal of Sustainable Education*, *2*. Retrieved from http://www.jsedimensions.org/wordpress/wp-content/uploads/2011/03/CosetteArmstrongEditedTABLESFIXED.pdf

Barnhardt, R., & Kawagley, A. O. (2005). Indigenous knowledge systems and Alaska Native ways of knowing. *Anthropology and Education Quarterly*, *36*(1), 8-23. Retrieved from http://www.ucpress.edu/journals/rights.htm

Baum, F., MacDougall, C., & Smith, D. (2006). Participatory action research. *Journal of Epidemiology and Community Health*, *60*(10), 854-857. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2566051/

Bostrom, M., Andersson, E., Berg, M., Gustafsson, K., Gustavsson, E., Hysing, E., . . . Ohman, J. (2018). Conditions for transformative learning for sustainable development: A

Education for Sustainable development in k-8 Interior Alaska Schools theoretical review and approach. *Sustainability*, *10*(12), 4479. https://doi.org/10.3390/su10124479

Cole, T. (2003). *Crooked past: The history of a frontier mining camp, Fairbanks, Alaska.* Fairbanks, AK: University of Alaska Press.

Corcoran, P. B., Elder, J. L., & Tchen, R. (Eds.). (1998). *Academic Planning in College and University Environmental Programs: Proceedings of the 1998 Sanibel Symposium*. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=B846660CD6121A9F5DD8D5699671D021?doi=10.1.1.110.5104&rep=rep1&type=pdf

Cresswell, T. (2009). *Place*. Egham, UK: Royal Holloway, University of London.

Evans, N., Stevenson, R. B., Lasen, M., Ferreira, J., & Davis, J. (2017). Approaches to embedding sustainability in teacher education: A synthesis of the literature. *Teaching and Teacher Education,63*, 405-417. doi:10.1016/j.tate.2017.01.013

The Fairbanks Folk School. (2020). *Week in the woods*. Retrieved January 16, 2020, from: https://folk.school/programs/week-in-the-woods/

Fairbanks North Star Borough School District (Ed.). (2019, November). *Personalized learning*. Retrieved January 5, 2020, from https://www.k12northstar.org/personalized-learning

FNSB Sustainability Commission. (2018). *Sustainability plan*. Retrieved from http://www.co.fairbanks.ak.us/Boards/Pages/SustainabilityCommission.aspx

Gorbis, M. (2019, March 11). Five principles for thinking like a futurist [Editorial]. Retrieved February 9, 2020, from Educausereview https://er.educause.edu/articles/2019/3/five-principles-for-thinking-like-a-futurist

Greenwood, D., & Smith, G. A. (2008). *Place-based education in the global age: Local diversity.*: Psychology Press, Taylor & Francis Group.

Henry-Stone, L. (2010). Cultivating sustainability pedagogy through participatory action research in interior Alaska. *Journal of Sustainability Education*, *1*(May), 1-25. Retrieved from http://www.ankn.uaf.edu/Curriculum/PhD_Projects/LauraHenryStone.html

Komasinski, A., & Gakushi, I. (2017). Critical thinking and normative competencies for sustainability science. *Journal Higher Education and Lifelong Learning*, *24*, 24-37. https://doi.org10.14943/J.HighEdu.24.21

Laurie, R., Nonoyama-Tarumi, Y., McKeown, R., & Hopkins, C. (2016). Contributions of education for sustainable development (ESD) to quality education: A synthesis of research. *Research*, *10*(2), 226-242. Retrieved from https://journals.sagepub.com/doi/pdf/10.1177/0973408216661442

Lincoln, Y. S., Lynham, S. A. & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 97-128). (4th ed.). Sage.

McLeod, S. (2016). Bandura-social learning theory. Retrieved January 17, 2020, from *Simply Psychology* from: https://www.simplypsychology.org/bandura.html

Merculieff, I., & Roderick, L. (2013). *Stop talking Indigenous ways of teaching and learning and difficult dialogues in higher education*. Retrieved from https://ctl.oregonstate.edu/sites/ctl.oregonstate.edu/files/stop_talking_final.pdf

Ontong, K., & Le Grange, L. (2014). The role of place-based education in developing sustainability as a frame of mind. *Southern African Journal of Environmental Education*, *30*, 28-38.

Purvis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: In search of conceptual origins. *Sustainability Science*, 681-695. https://doi.org/10.1007/s11652-018-0627-5

Rieckmann, M. (2018). *Learning to transform the word: Key competencies in education for sustainable development*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000261802

Rittel, H. W.J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, *4*(2), 155-169. Retrieved from http://www.jstor.org/stable/4531523 .

Schunk, D.H. (2008, 5th Ed.). *Learning theories: An educational perspective.* New Jersey: Pearson Merrill Prentice Hall.

Scoullos, M. J., & Malotidi, V. (2004). *Handbook on methods used in environmental education and education for sustainable development*. Retrieved from http://www.medies.net/_uploaded_files/publications/HANDBOOK._ENGpdf.pdf

Sobel, D. (2005). *Place-based education: Connecting classrooms & communities* (5th ed.). Orion Society.

Spiropoulou, D., Antonakaki, T., Kontaxaki, S., & Bouras, S. (2007). Primary teachers' literacy attitudes on education for sustainable development. *Journal of Science Education and Technology*, *16*(5), 443-450. https://doi.org/DOI:10.1007/s10956-007-9061-7

State of Alaska (Ed.). (2020). *Alaska kids' corner, Alaska by region*. Retrieved January 27, 2020, from State of Alaska website: https://alaska.gov/kids/learn/region.htm

Stevenson, K., & Peterson, N. (2016). Motivating action through fostering climate change hope and concern and avoiding despair among adolescents. *Sustainability*, *8*(6). Retrieved from https://www.mdpi.com/2071-1050/8/1/6/htm

Takano, T., Higgins, P., & Mclaughlin, P. (2009). Connecting with place: implications of integrating cultural values into the school curriculum in Alaska. *Environmental Education Research,15*(3), 343-370. doi:10.1080/13504620902863298

United Nations Educational, Scientific and Cultural Organization (Ed.). (2017, June). *Education for sustainable development*. Retrieved December 1, 2017, from https://en.unesco.org/themes/education-sustainable-development

United Nations General Assembly. (2007, September). *United Nations declaration on the rights of Indigenous peoples*. Retrieved from https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

University of Plymouth. (2020). *What is education for sustainable development?* Retrieved from https://www.plymouth.ac.uk/students-and-family/sustainability/sustainability-education/esd

U.S. Global Change Research Program, 2018: *Impacts, risks, and adaptation in the United States: Fourth national climate assessment*, Volume II: Report-in-Brief [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, 186.

Vare, P., & William, S. (2007). Learning for a change: Exploring the relationship between education and sustainable development. *Journal of Education for Sustainable Development*, *1*(2), 191-198. https://doi.org/10.1177/097340820700100209

Vygotsky, L.S. (1978). *Mind in Society.* Harvard University Press.

Warren, A., Archambault, L., & Foley, R. (2014). Sustainability education framework for teachers: Developing sustainability literacy through futures, values, systems and strategic thinking. *Journal of Sustainability Education*, *6*(May). Retrieved from http://www.jsedimensions.org/wordpress/content/sustainability-education-framework-for-teachers-developing-sustainability-literacy-through-futures-values-systems-and-strategic-thinking_2015_01/

The Waters Center for Systems Thinking. (2020). *Habits of a systems thinker.* Retrieved February 2, 2020, from Systems thinking tools and strategies website: https://waterscenterst.org/systems-thinking-tools-and-strategies/habits-of-a-systems-thinker/

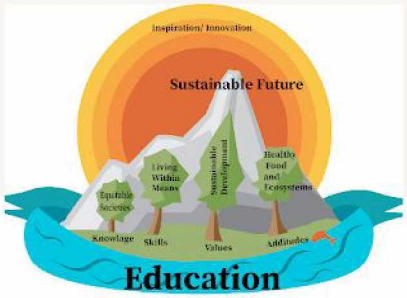
What is place based education; And why does it matter. (2017, February). Retrieved January 10, 2020, from Getting Smart website: https://www.gettingsmart.com/wp-content/uploads/2017/02/What-is-Place-Based-Education-and-Why-Does-it-Matter-3.pdf

Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: A reference framework for academia and program development. *Sustainability Science*, *6*(3), 203-218.

World Commission on Environment, Development (WCED) (1987). *Our common future.* Oxford University Press.

The content of this work is geared toward students in the upper elementary **grades 4th-6th**, but could easily be adapted for older or younger students.

Clicking on the yellow buttons throughout this website will take you to lessons and pedagogical information.



Purpose Statement

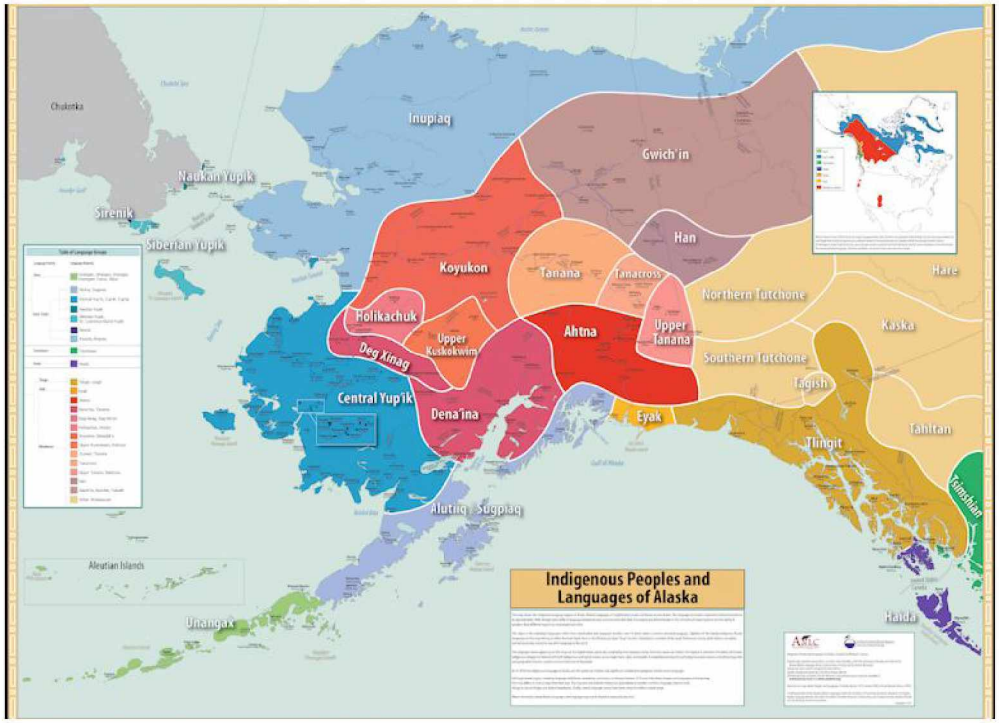
Education for Sustainable Development (ESD) is a holistic approach to education that seeks to create a better world for this generation and the next. The aim of ESD is for students to gain knowledge, skills, attitudes and values that will shape the planet for a sustainable future. The United Nations has adopted 17 global goals as a "universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030 (United Nations Development Program, 2020, para. 1). Models for sustainability look very different depending on where one lives. The context of this work is Alaska, and more specifically the Fairbanks North Star Borough.

"Respect for Indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment"

-United Nations Declaration on the Rights of Indigenous Peoples.

Alaska Culturally Responsive Curriculum Standard Alignment

Indigenous Pedagogies



Lesson Unit: Colonization &Land Acknowledgment

I recommended using this lesson to celebrate Indigenous Peoples day/ formerly known as Columbus Day (Mid Oct.)
This lesson also compliments the *Alaska History and Economy Unit* (located in SDG 8)

Sustainable Development Goal (SDG): 10-Reduced Inequalities, 16-Peace Justice and Strong Institutions

ESD Competencies:
Values or Normative thinking
Futures Thinking

Indigenous Pedagogy-
Place Based Knowledge
Story Telling

FNSBSD Social Studies Standards:
GL.1/5C.1 Communication
GL.2/5C.2 Civics
GL.3/5C.3, 5C.4,5C.5 Historical
GL.5/5C.7 Civic Engagement
GL.7 Discourse

Essential Goals:

- Be able to look at history from multiple perspectives.
- Identify the injustice of colonization during early exploration of the late 15th century, and also in Alaska during the 19th century.
- Understand the importance of getting involved in government on issues that matter.

Essential Questions:

- How can we make sure all voices are heard in history?
- How can getting involved in government make a difference?
- What were the impacts of colonialism on the Americas and later in Alaska?
- Why are land acknowledgements important?
- How can we disrupt and dismantle colonialism beyond this land acknowledgment?

Materials:
Books: *Encounters* by: Jane Yolen; *Voices in the Park* by: Michael Browne
Videos:

Supplemental Books: *Morning Girl* By: Michael Dorris; *My Name is Not Easy* by: Debby Dahl Edwardson, *The Year of Miss Agnes* by: Kirkpatrick-Hill
We
Supplemental Websites-
Information on Russian Fur Trade https://www.nps.gov/sitk/learn/historyculture/the-russians.htm
Klondike Gold Rush https://www.nps.gov/klgo/learn/historyculture/environmental-impacts.htm
Impacts on the land from the gold rush
https://www.nps.gov/klgo/learn/historyculture/environmental-impacts.htm
Claims in Alaska https://www.nps.gov/yuch/learn/historyculture/klondike-alaska-gold-rush.htm
WWII in Alaska https://www.nps.gov/articles/world-war-ii-in-alaska.htm

Duration: 3 to 4 class periods.
It would be ceremonial to end this lesson on Indigenous Peoples day, previously known as Columbus Day with your classroom land acknowledgment

Assessment:

- Questions and response worksheet from the video

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Background Information for the Teacher

- **What is colonialism?** The phenomena of one society expanding into another territory and settling its people on the newly conquered land. This includes expansion of powers through governance over the lands, cultures, and people outside its own natural boarders. This results in displacing or dominating the Indigenous peoples. This has been going on through our entire history from ancient times to today (Stanford University, 2016).

- **Colonialism in Alaska?** Alaska's Indigenous peoples have experienced colonialism at the hands of the Spanish, British, Russians (1741-1800's) and the United States (1800's on). It began with the 1741 Russian Fur Trade where indigenous people were taken hostage and the Aleut and Alutiiq people were forced to supply resources for their subsistence-https://www.nps.gov/sitk/learn/historyculture/the-russians.htm. Eventually this spread to the Southeast where Tlingit people were taken advantage of and fought back in the Battle of 1804. During this time Russian missionaries introduced the Russian Orthodox church. After depleting much of the resources and vulnerabilities of Russian American from the Crimean War, Russia sold the territory to the United States, a flawed sale to begin with. Alaska was virtually left alone until it became the gateway to the Klondike Gold Rush. The heavily trafficked corridor had huge impacts on the landscape and native populations. https://www.nps.gov/klgo/learn/historyculture/environmental-impacts.htm. During this time many never made it to Canada and began to stake claims in Alaska. https://www.nps.gov/yuch/learn/historyculture/klondike-alaska-gold-rush.htm This put pressures on Alaska's natural and cultural resources and subsistence living. https://www.nps.gov/yuch/learn/historyculture/subsistence.htm. Then next big impact on Alaska was WWII. https://www.nps.gov/articles/world-war-ii-in-alaska.htm The only battle on US soil took place in Alaska and Japanese forces occupied the Aleutian Islands for more than a year. During this time the Aleuts were evacuated and internment caused considerable hardship. https://www.nps.gov/articles/aleu-mobley-intro.htm. Some villagers of Attu were interned by the enemy in Japan and suffered even more hardships. The Indigenous fight for land began with the Alaska Railway, Alaska Highway, and was ultimately ended with ANSCA spurred by the building of the Alaska oil pipeline.

- **What were the impacts of colonialism on Alaska Native people?** The overall effect was to displace, or attempt to extinguish pre-existing cultures and societies. Therefore, communities were forced to give up their entire way of life, and adapt to a new one. This involved loss of traditional languages, changes in kinship structures as children were shipped off to boarding schools, spiritual practices were demolished, and their subsistence lifestyle was reduced with the introduction of cash economies and material goods. Contact to Europeans also introduced diseases such as small pox, tuberculosis and influenza which decimated populations. There was also the Russian enslavement and exploitation of Aleut peoples for fur seal harvesting. Later, In WWII the United States placed Aleuts in internment camps, which resulted, in many cases, to death and dislocation. As time moves on, Jim Crow found his way to Alaska. In 1945 the Anti-Discrimination Act was passed, but in subtle and not-so-subtle ways discrimination still happens today. This is only touches the surface of the misfortune. All of this has left lasting effects over many generations. A common result of such tragedy is to develop self-destructive or destructive behaviors, which accounts for much of the higher rates of substance abuse, violence and suicide rates amongst Alaska Native citizens (ADN, 2009).

- **What is a Land Acknowledgement?** "A Land Acknowledgement is a formal statement that recognized and respects Indigenous Peoples as traditional stewards of this land and the enduring relationship that exists between Indigenous Peoples and their traditional territories (Northwest University, 2020)."

- **Why do we recognize the land?** "To recognize the land is an expression of gratitude and appreciation to those whose territory you reside on, and a way of honoring the Indigenous people who have been living and working on the land from time immemorial. It is important to understand the long-standing history that has brought you to reside on the land, and to see to understand your place within that history. Land acknowledgements do not exist in a past tense, or historical context: colonialism is a current ongoing process, and we need to build our mindfulness of our present participation. It is also worth noting that acknowledging the land is indigenous protocol (Northwest University, 2020)."

- **As teachers, how can we disrupt and dismantle colonialism beyond this land acknowledgment?** .

- Acknowledge our position in the system- Ex. My personal acknowledgment for this work: I am a white, middle class woman, born in the lower 48, I have lived in the outskirts of Fairbanks for over 20 years. I must credit the indigenous people of my community, the incredible online resources and my my anti-oppressive reflective practices for this work. My ancestral history is that of colonizers. Which makes it important that this work is done ethically informed and in relational ways. I am grateful to all who have contributed to this work.

- Integrate Indigenous ways of knowing into existing curriculum- It is important to transform teacher mindsets. As educators we are strong agents of change. It is important to recognize the Eurocentric conceptualizations and knowledges that exist and are dominant in our school systems, and begin to integrate indigenous pedagogies and knowledges into the structure of curriculum development.

Lesson Unit: Colonization &Land Acknowledgment

Part 1- Colonization of Bahamas by European Settlers/Christopher Columbus

- **Introduction**-Begin by explaining that two people can be looking at the same thing but see it differently. Show the point of view slide (below). Ask students to share the first thing they see in each of the pictures. Ask if anyone sees something different in each of the pictures. Take some time to discuss each image, and what it means to look at something from a different point of view or perspective. Ask if anyone knows why we now call Christopher Columbus Day, Indigenous Peoples day? Remind students that textbooks often leave out key points and multiple perspectives of an event in history, so we should always be thinking, Is there another perspective on this issue?
- **Read**- Encounters by: Jane Yolen, explain that the Taino are the Indigenous people of the Caribbean during the time of European contact in the late fifteenth century. Here is a link to an audio version- https://www.youtube.com/watch?v=NSRvWlCwlKU

After Reading Discussion Questions

1. Have you ever felt like you had something to say but nobody would listen because you are a child?
2. What were some of the gifts that the chief gave? And what gifts did they get in turn? (write these on the board for students to see) Do you notice a difference in the types of gifts?
3. Why were the Europeans there? What were they looking for?
4. Do you think the Europeans treated the Taino people with respect? How come? Were they treated as equals? Gives some examples form the text.
5. Early textbooks didn't include the perspectives of Indigenous people. Why do you think that is?

Activity: There are lots of unsettling illustrations by David Shannon in the book.

- Choose the most interesting illustrations and Color Copy 5 or 6 of them (however many you have time for).
- Put them on a giant piece of paper. Have students work in groups. Each group should pick a secretary to write on the poster (They can rotate this position). Students should spend about five minutes or so at each picture. First they will discuss what they think the metaphorical images mean, the secretary should make sure each group member has a chance to speak. The secretary should write down some of their ideas on the poster.
- When students have had sufficient time to finish the task, they should rotate to another image and do the same thing.
- Groups should visit every picture.

Closing Discussion:

- How can you imagine a better future for this story?
- What could have been done differently?
- Does this still happen today?
- **Share the definition of marginalized**- (of a person, group or concept) treated as insignificant or peripheral.
- Can you think of people today or in the past that are marginalized?
- How can we imagine a better future for marginalized people?

Read *Voices in the Park by*: Anthony Browne. In this story four different voices tell their own versions of the same walk in the park from radically different perspectives. This will serve as a nice final note on thinking about an issue from different perspectives.

Extensions: You can have students read the short novel *Morning Girl* By: Michael Dorris. This story is presented in alternating chapters of first person narratives from Morning Girl and her younger brother Star Boy (Taino children)

Lesson Unit: Colonization &Land Acknowledgment

Part 2- Colonization in Alaska

Introduction: In this part students will explore issues for Indigenous People in Alaska

Discussion Questions: Explain that the next part of this lesson we will move to colonization of Alaska.

- What were the main reasons Europeans came to Alaska? Make sure students mention the fur trade, gold rush, WWII, Alaska Highway, Oil Pipeline, adventure etc.

(Check out my Alaska History and Economy Unit that goes more in depth into these topics SDG 8 Decent Work Economic Growth, the background information section should help with this as well.)

Video and Questions: Let students know that they are going to watch a video about Alaska Native peoples fight for land rights. When the video is finished they are going to work in table groups to answer questions on a worksheet. Show them the questions reading each one. (do not pass out worksheet until after video) Watch video https://www.youtube.com/watch?v=50_kse-Uh-g

Worksheet: At each table group a discussion leader should be chosen (they are the only one who will have the questions to begin with). Their job is to read each question aloud and hold table discussion making sure each person gets a chance to speak at some point. They should spend about 2-3 minutes on each question. Teacher-Periodically announce the question number students should be on to keep them on track with time. When groups are finished, hold one last whole class discussion. Ask students if there where any questions they had trouble answering? Ask each table group to share one thing they discussed that was particularly interesting with the whole class.

Assessment: (This can be done the next day to have them internalize the material overnight) Have students independently answer the worksheet questions. This is a quiet time, they can no longer work with partners on these responses. Remind them this is an assessment.

Optional work for early finishers: Watch one of the *"Learning from elders"* videos and share a short bio of the person you choose. This can be done as a mini slide show, poster or research paper.

Links:

This link shows all of the elder videos - https://www.tananachiefs.org/legacy-of-our-elders/#more-521

Dr. Poldine Carlo of Nulato-https://www.youtube.com/watch?time_continue=213&v=KWYszLR6U_o&disable_polymer=true

Dr. Trimble Gilbert-Fort Yukon Https://www.youtube.com/watch?v=zdqI1_0Kw3w

Extended activities: Consider a field trip to Doyon, invite an elder to the classroom, integrate an Alaska Native art project. The Following are videos form elders of TCC talking about their histories.

This is a video on the history of TCC
https://www.youtube.com/watch?time_continue=355&v=2zHw7EnEzyI&feature=emb_logo

Lesson Unit: Colonization &Land Acknowledgment

Part 3- A land acknowledgment to the Athabascan (Dene) people of Interior Alaska.

Introduction- Acknowledging relationships to space and place is an ancient indigenous practice that is still important today.

Watch Video- This is a video not from Alaska, but talks about the importance of this for indigenous people https://www.youtube.com/watch?v=ETOhNzBsiKA&feature=emb_logo

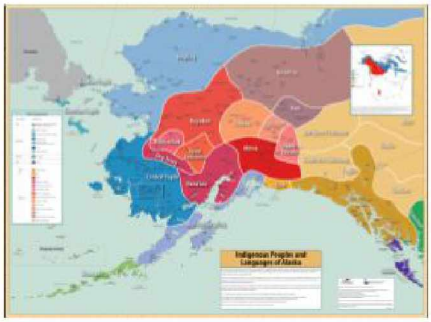
Read Definition- What is a Land Acknowledgement? "A Land Acknowledgement is a formal statement that recognized and respects Indigenous Peoples as traditional stewards of this land and the enduring relationship that exists between Indigenous Peoples and their traditional territories (Northwest University, 2020)."

Today, in honor of Indigenous Peoples today, it is important that we become aware of the lands we are on.

I recommend purchasing the Alaska Indigenous Peoples and Languages of map for your classroom. It will allow students the opportunity to explore these cultures year round.

Ask students to explore the map and identify what lands we are on.

- Who has traveled to other places outside of Fairbanks?
- Who's ancestral land did you visit?



Print and read the following land acknowledgment, give it a nice background and post up on the wall. I put it above the door in the classroom.

Land Acknowledgment for Interior Alaska

We acknowledge that we are in the ancestral and unceded traditional territory of the Dene (Athabascan) people of the lower Tanana River area.

Alaska Native people never surrendered land or engaged in Treaty agreements with Russia or the United States.

We acknowledge this not only in thanks to the Indigenous communities who have held relationship with this land for generations, but also in recognition of the historical ongoing legacy of colonialism.

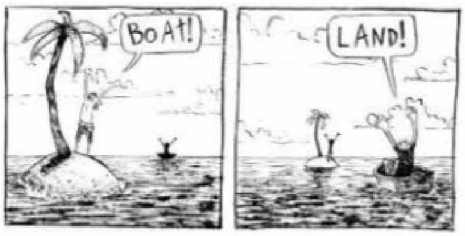
Nature Walk- After this I suggest talking a walk outside, and thinking about traditional ways of living. Students can talk about ways indigenous people use the plants and animals in our region. (Check out my nature walk guide for more suggestions for this walk, located in SDG 15 Life on Land)

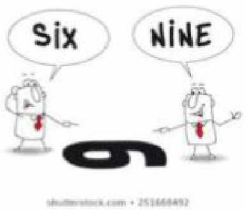
Final Class Discussion Question:

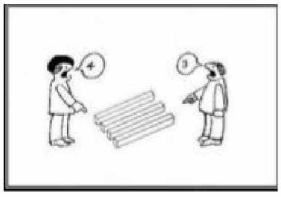
How can we disrupt and dismantle colonialism beyond this land acknowledgment?

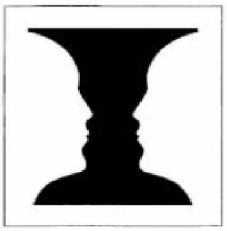
Teacher ideas for this- integrate Indigenous ways of knowing into existing curriculum.

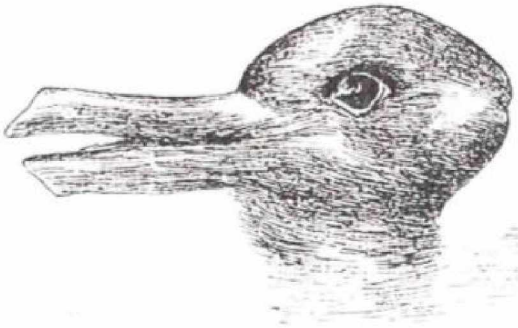
A Different Point of View

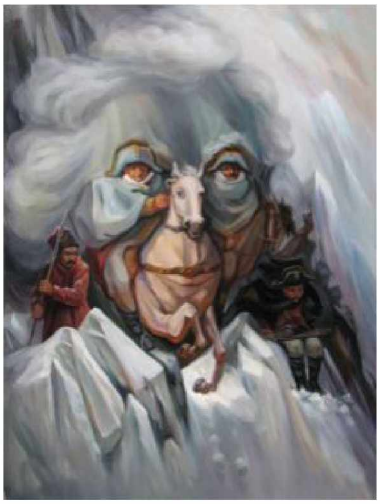












Alaska Native Settlement Claims Act ANSCA

Video Questions and Response

Name: _____

1. What were some of the difficulties that came out of Alaska Native Children being forced to go to boarding schools?_____

2. What did Willie Hensley realize about landownership after statehood? What did he do change this?

3. How does getting involved in government make a difference?

4. What discovery was made that expedited the dispute over land ownership?_____

5. What is ANCSA (Alaska Native Claims Settlement Act) and Why was it important?

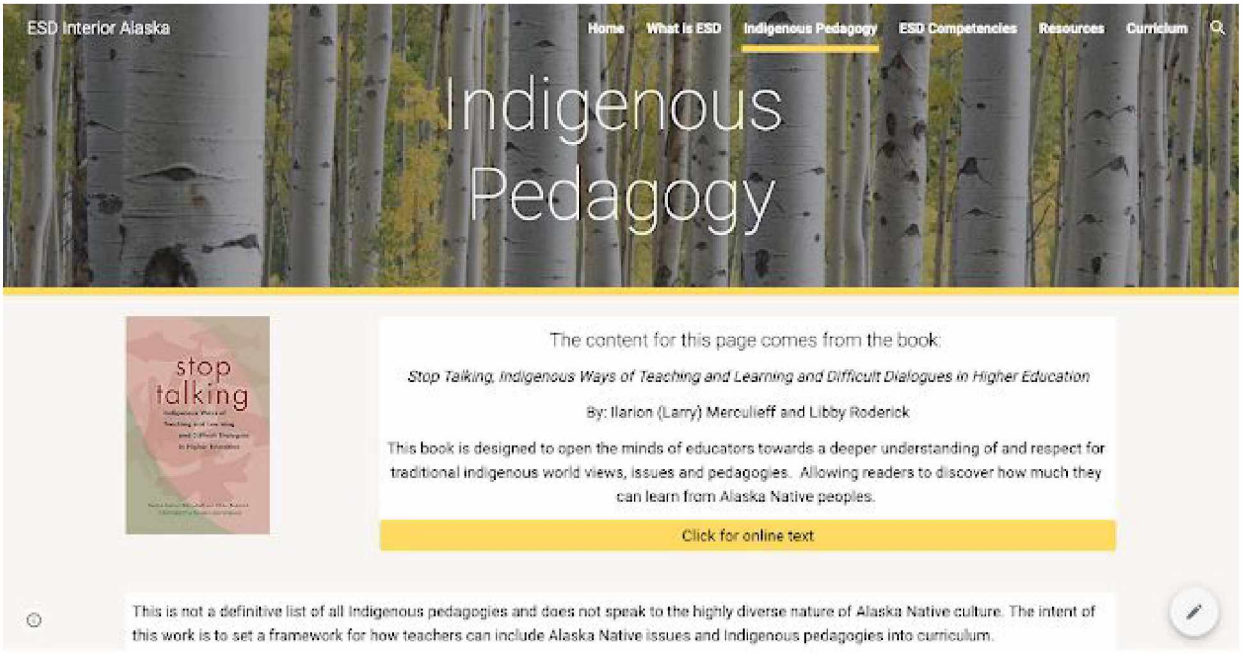
6. How was land distributed to Alaska Natives; through what type of organizations? _____

7. What was this like for Alaska Native People? How did it affect subsistence life?

8. Do you think this settlement was fair? Why or why not.

References

- Anchorage Daily News. (2009, February 4). Colonialism wreaked havoc on Alaska Native peoples. *Anchorage Daily News*. Retrieved from https://www.adn.com/voices/article/colonialism-wreaked-havoc-alaska-native-peoples/2009/02/05/
- National Park Service (Ed.). (2016, April). The Russians. Retrieved from Sitka, National Historic Park Alaska website: https://www.nps.gov/sitk/learn/historyculture/the-russians.htm
- Northwestern Univerisity. (2020). Native American and Indigenous initiatives. Retrieved from Northwestern website: https://www.northwestern.edu/native-american-and-indigenous-peoples/about/Land%20Acknowledgement.html
- Reese, D., Dr. (2019, March 9). Are you planning to do a land acknowledgement? Retrieved from American Indians in children's literature website: https://americanindiansinchildrensliterature.blogspot.com/2019/03/are-you-planning-to-do-land.html
- Stanford University. (2016). Colonialism. Retrieved from Stanford Encyclopedia of Philosophy website: https://plato.stanford.edu/entries/colonialism/



The content for this page comes from the book:

Stop Talking, Indigenous Ways of Teaching and Learning and Difficult Dialogues in Higher Education

By: Ilarion (Larry) Merculieff and Libby Roderick

This book is designed to open the minds of educators towards a deeper understanding of and respect for traditional indigenous world views, issues and pedagogies. Allowing readers to discover how much they can learn from Alaska Native peoples.

Click for online text

This is not a definitive list of all Indigenous pedagogies and does not speak to the highly diverse nature of Alaska Native culture. The intent of this work is to set a framework for how teachers can include Alaska Native issues and Indigenous pedagogies into curriculum.

Below are summaries of Indigenous Pedagogies

Earth-Based Pace

This is also called nature-based, as life is synchronized around the seasons and natural cycles. This requires patience, timing and experience to understand at the deepest level. (p.18)

Attending to Relationships

Teaching and learning occurs within the larger context of family, village, tribe, clan, homeground, and history. There is an awareness of the continuous relationship to everything and everyone else with intent to maintain harmonious and balanced relationships with all creation. (p.19)

Place-Based knowledge

A deep and detailed knowledge of place in the sense of belonging to, identification with and awareness of everything that goes on in place is essential. Being able to read the weather, terrain, water, vegetation and behavior patterns of fish and wildlife the more safe and successful you are. (p.19)

Learning as Group

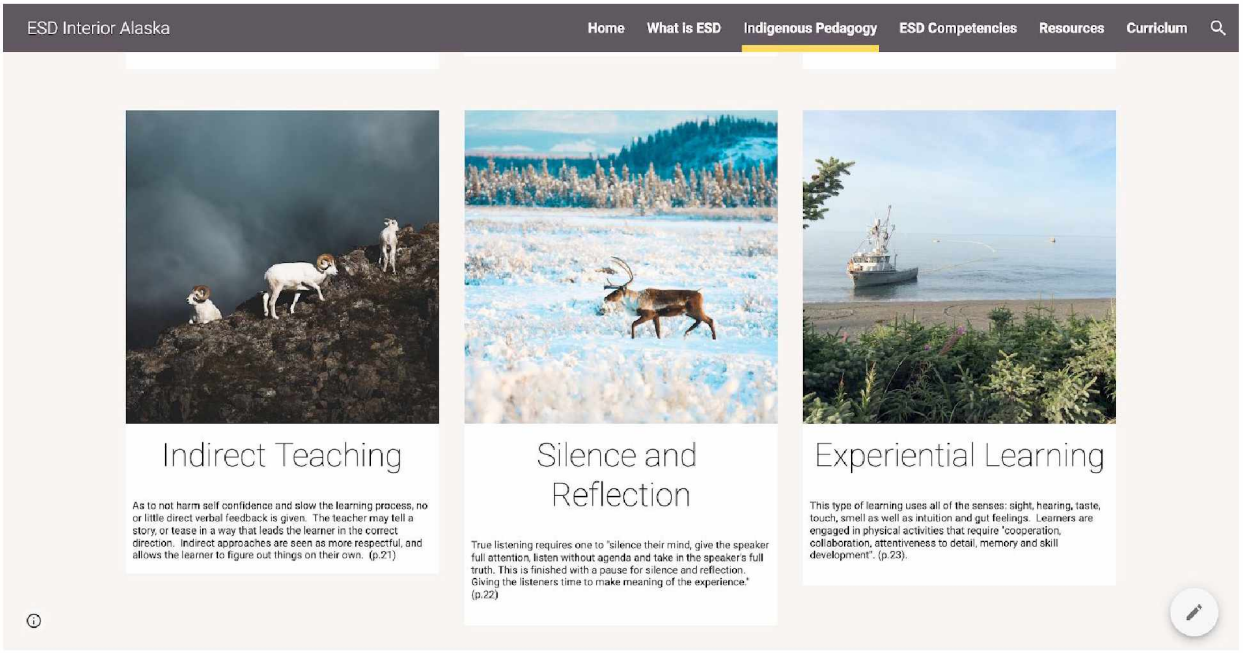
Traditional Native life involves working and interacting as a group. The welfare of the group is more important than that of the individual. This requires cooperation and cohesion for the greater good (p.20)

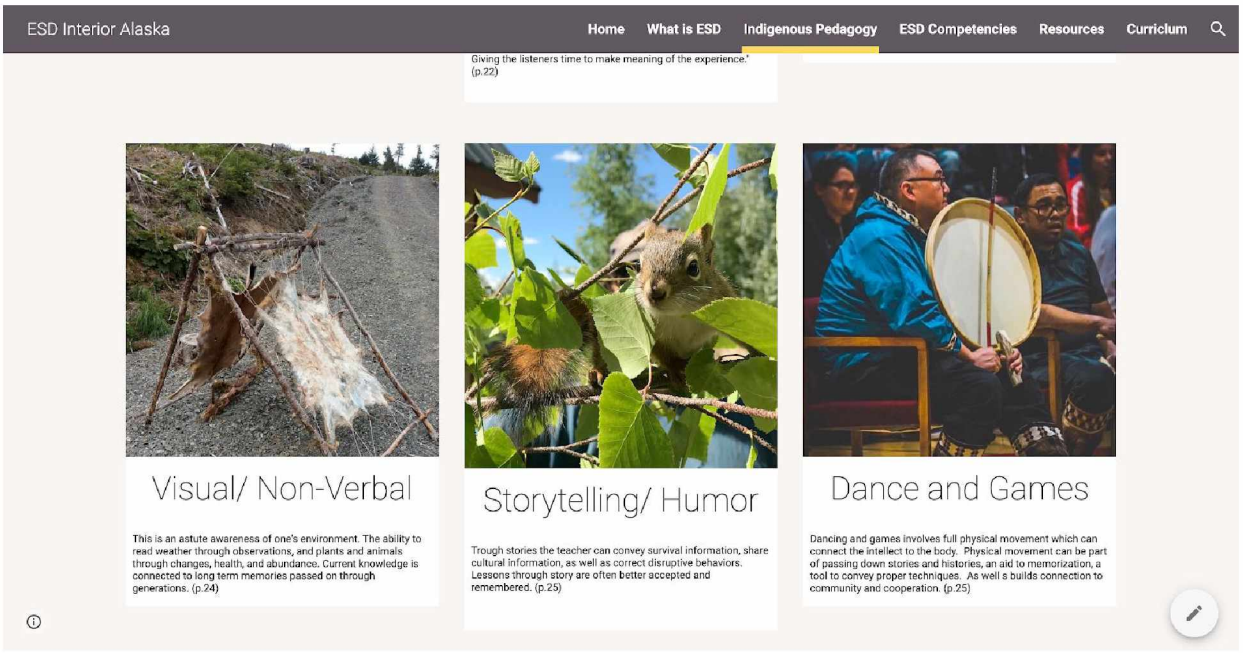
Learning from Elders

Elders in the community are recognized for their "wisdom and integrity, their knowledge of traditional values and practices, an their deep connections to all of creation. This is acquired through life experience, attentive listening, and deep understanding of the value and purposes of traditional ways." (p.20)

Close Observation

Teaching is done through demonstration, and learners observe, emulate, experiment and reason on their own. The key directive is to watch, listen and learn (p.21)


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Resources
Curriculum
Indirect Teaching
As to not harm self confidence and slow the learning process, no or little direct verbal feedback is given. The teacher may tell a story, or tease in a way that leads the learner in the correct direction. Indirect approaches are seen as more respectful, and allows the learner to figure out things on their own. (p.21)
Silence and Reflection
True listening requires one to "silence their mind, give the speaker full attention, listen without agenda and take in the speaker's full truth. This is finished with a pause for silence and reflection. Giving the listeners time to make meaning of the experience." (p.22)
Experiential Learning
This type of learning uses all of the senses: sight, hearing, taste, touch, smell as well as intuition and gut feelings. Learners are engaged in physical activities that require "cooperation, collaboration, attentiveness to detail, memory and skill development". (p.23).


ESD Interior Alaska
Home
What is ESD
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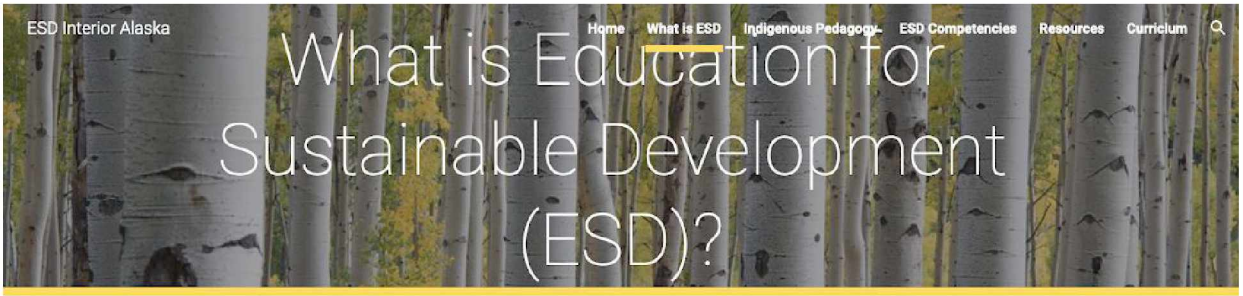
Giving the listeners time to make meaning of the experience." (p.22)
Visual/ Non-Verbal
This is an astute awareness of one's environment. The ability to read weather through observations, and plants and animals through changes, health, and abundance. Current knowledge is connected to long term memories passed on through generations. (p.24)
Storytelling/ Humor
Trough stories the teacher can convey survival information, share cultural information, as well as correct disruptive behaviors. Lessons through story are often better accepted and remembered. (p.25)
Dance and Games
Dancing and games involves full physical movement which can connect the intellect to the body. Physical movement can be part of passing down stories and histories, an aid to memorization, a tool to convey proper techniques. As well s builds connection to community and cooperation. (p.25)



'ESD' is defined as "education that empowers learners to make informed decisions and responsible actions for environmental integrity, economic viability and a just society- for present and future generations." (UNESCO, 2019)

"ESD is a learning process based on the principles that underlie sustainability and is concerned with all levels and types of learning to provide quality education and foster sustainable human development

learning to know- (a way of thinking),

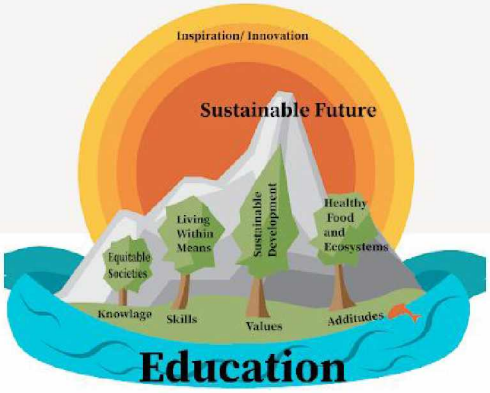
Learning to be- (a way of being)

Learning to live together- (a way of co-existing)

Learning to do- (a way of acting)

Learning to transform oneself and society."

UNESCO (2019)



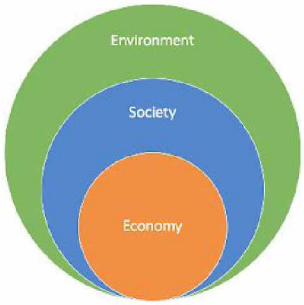
UNESCO 5 Pillars for ESD

Sustainable Development as defined by the Brundtland Report (1987) is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs (p.39).

Solutions are based on three key principles:

1. Understanding of the interrelation between environment, economy and society.
2. Fair distribution of natural resources and equal opportunities not only for the present generation but also for future generations.
3. Limitation of human activities within the holding capacity of the planet. (Spiroplou, Antonakaki, Kontaxaki & Bouras, 2007, p.444)

Graphic Models of Sustainability

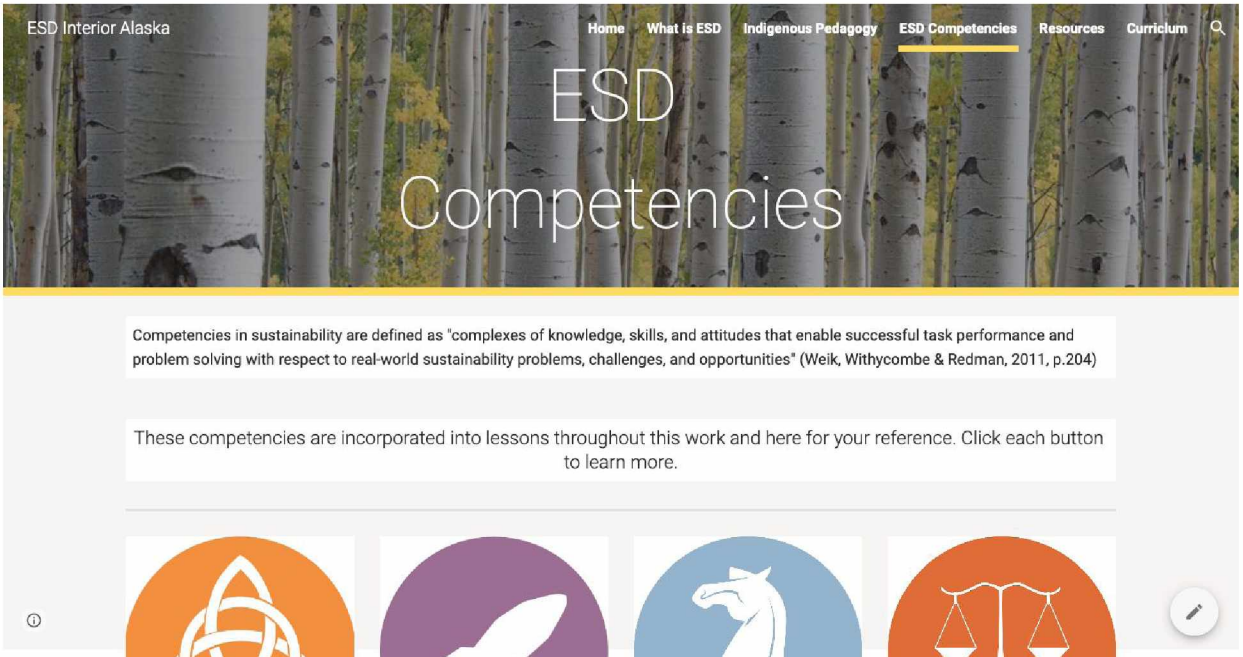


This nested graphic shows, the environment as the outermost circle, which symbolizes the importance of the environment as the foundation for a healthy society, and in turn a healthy society and economy.

This model represents a balance necessary for policy making and problem solving in the field of sustainability, where solutions become viable when not dominated by one view point, with sustainability at the center.

The three pillars of sustainability show the importance of all three pillars in solutions to sustainability issues. They have also been referred to as people, planet and profits.

(Figures 1, 2 & 3 Graphic representations of tripartite models of sustainability. Adapted from "Three Pillars of Sustainability: in search of conceptual origins," by Purvis, B., Y., & Robinson, D., 2019, *Sustainability Science*, p. 682.)

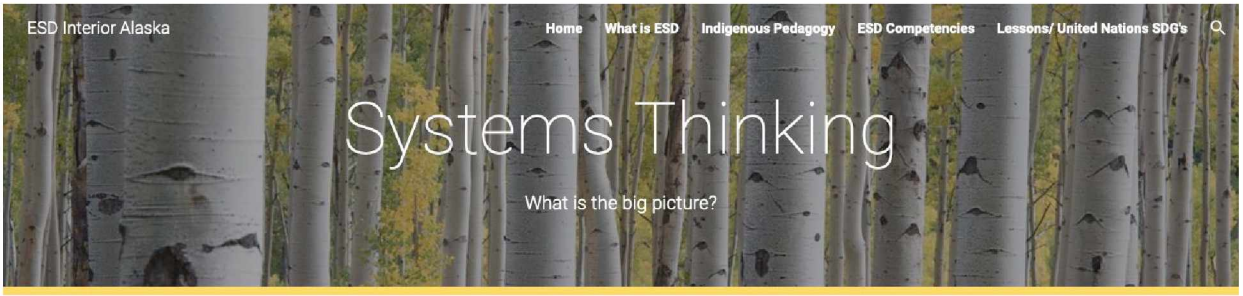


Competencies in sustainability are defined as "complexes of knowledge, skills, and attitudes that enable successful task performance and problem solving with respect to real-world sustainability problems, challenges, and opportunities" (Weik, Withycombe & Redman, 2011, p.204)

These competencies are incorporated into lessons throughout this work and here for your reference. Click each button to learn more.

I have adapted learning outcomes from higher education literature to better suit upper elementary and middle school students.

*Competencies are **key** for sustainability efforts (Weik, 2011).



The ability to recognize and understand relationships, to analyse complex systems, to perceive the ways in which systems are embedded within different domains (society, environment economy) and different scales (local to global), and to deal with uncertainty. (Reickmann, 2018, p.43)

Learning Outcomes:

- seeking to understand the big picture
- seeing patterns/trends in systems (cause/effect)
- recognizing how a system's structure causes its behavior, or changing perspective to increase understanding (Structure/function)
- identifying circular nature of complex cause and effect relationships
- surfacing and testing assumptions; how do beliefs and attitude influence perspectives and actions
- finding where unintended consequences might arise
- finding leverage points to change a system
- resisting making quick conclusions

(The Water Center for Systems Thinking, 2020)

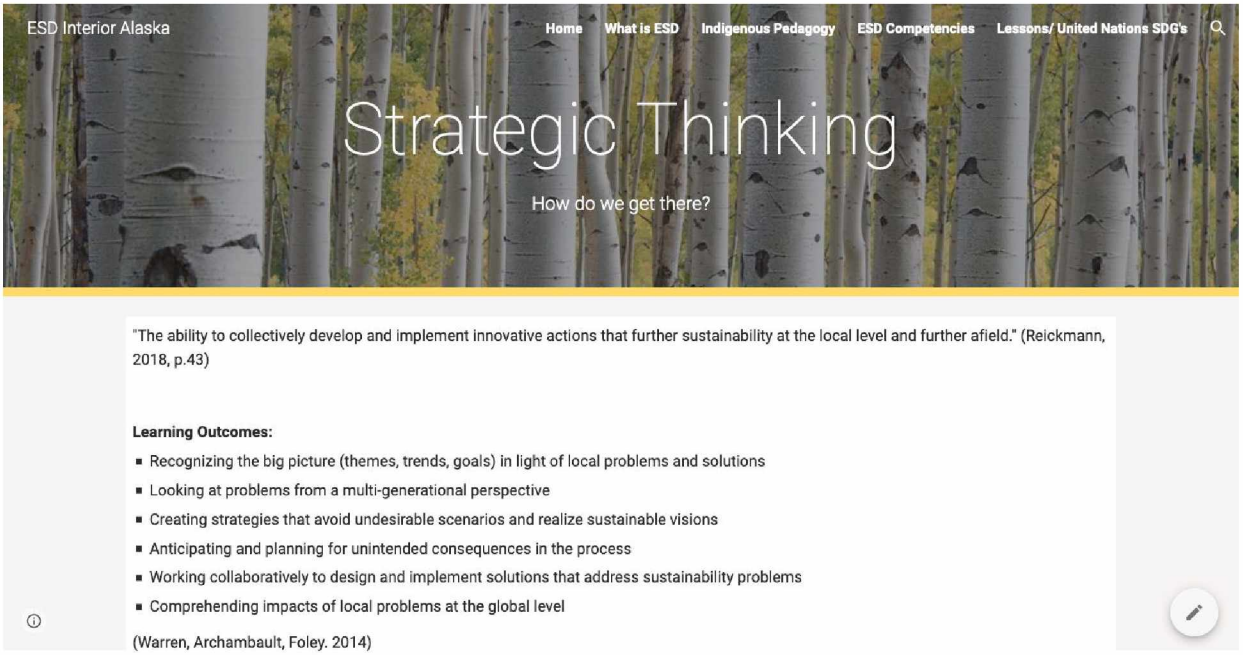
"The ability to understand and evaluate multiple futures- possible, probable and desirable- and create one's own visions for the future, to apply the precautionary principle, to assess the consequences of actions, and to deal with risk and changes." (Reickmann, 2018. p.43)

Learning Outcomes:

- Modeling the process of Foresight to insight to action
- *Not predicting the future but*
  - Seeing new possibilities for the future, Imagining and transforming how we think about the future
  - Creating a map to the future and looking for big areas of opportunity
  - Creating agency to create the kind of future we want
- *Learning to Focus on Signals-*
  - Developing foresight to see signals around us that will aid in the development of new ideas and new directions.
  - Looking for signals that grab your attention and make you ask why? this can be observations, news stories, technology.
  - Seeing signals offers feedback on what to do next.
- *Looking back to see forward-*
  - Connecting the past with the present and the future, to make better choices today.
- *Uncovering patterns-*
  - Uncovering larger patterns of change and transformation from an old way of doing things to a new way.
- *Creating a community-*
  - Creating a collaborative and communal space with a diversity of views, where young people are part of the conversation.

(Gorbis, 2019)

(Future Lab; Innovation in Education, 2009)

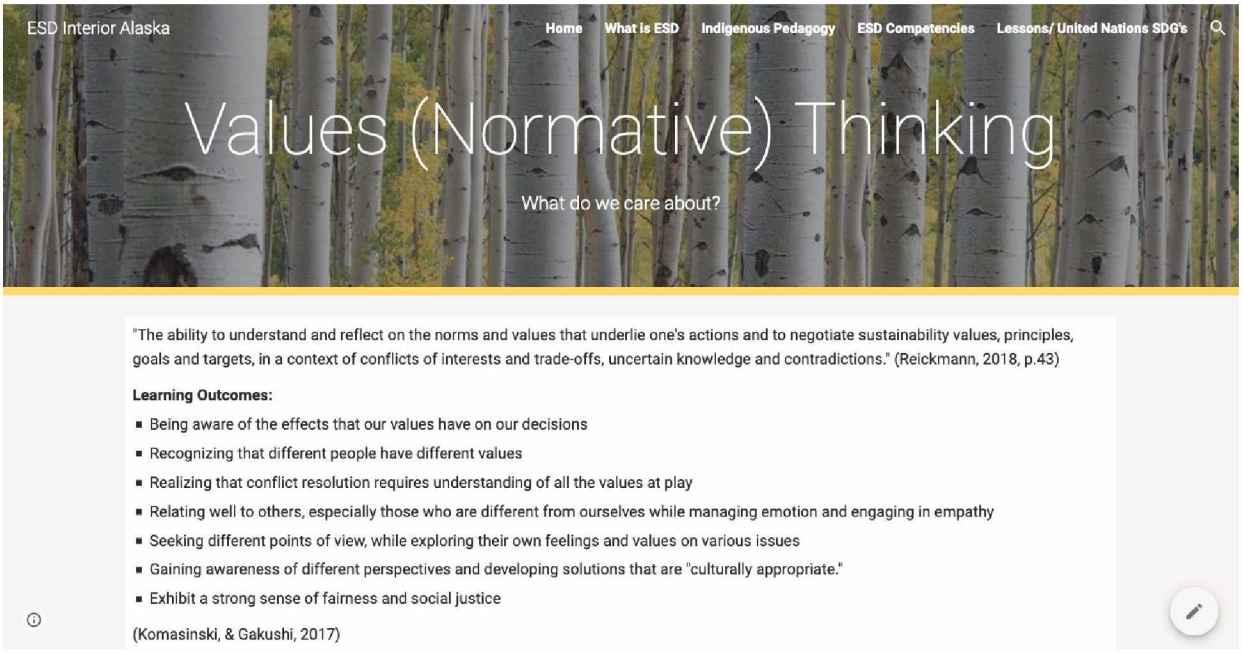


"The ability to collectively develop and implement innovative actions that further sustainability at the local level and further afield." (Reickmann, 2018, p.43)

Learning Outcomes:

- Recognizing the big picture (themes, trends, goals) in light of local problems and solutions
- Looking at problems from a multi-generational perspective
- Creating strategies that avoid undesirable scenarios and realize sustainable visions
- Anticipating and planning for unintended consequences in the process
- Working collaboratively to design and implement solutions that address sustainability problems
- Comprehending impacts of local problems at the global level

(Warren, Archambault, Foley. 2014)



"The ability to understand and reflect on the norms and values that underlie one's actions and to negotiate sustainability values, principles, goals and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge and contradictions." (Reickmann, 2018, p.43)

Learning Outcomes:

- Being aware of the effects that our values have on our decisions
- Recognizing that different people have different values
- Realizing that conflict resolution requires understanding of all the values at play
- Relating well to others, especially those who are different from ourselves while managing emotion and engaging in empathy
- Seeking different points of view, while exploring their own feelings and values on various issues
- Gaining awareness of different perspectives and developing solutions that are "culturally appropriate."
- Exhibit a strong sense of fairness and social justice

(Komasinski, & Gakushi, 2017)

"The ability to learn from others; understand and respect the needs, perspectives and actions of others (empathy); understand, relate to and be sensitive to others (empathic leadership), deal with conflicts in a group; and faciliate collaborative and participatory problem-solving." (Reickmann, 2018, p.43)

Learning Outcome:

- Developing skills in conflict resolution, negotiations, compromising, and trust building
- Being able to motivate, enable, and facilitate collaboration towards sustainability
- Showing leadership skills
- critically reflecting on one's own communication skills and prefered collaborative approaches.

(Wiek, Withycombe, Redman, 2011)

"The ability to question norms, practices, and opinions, reflect on one's values, perceptions and actions, and take a position in the sustainability discourse." (Reickmann, 2018, p.44)

Learning Outcomes:

- **Truth-seeking**- The desire for the best knowledge in any situations, even if it fails to support or undermines one preconceptions, beliefs or self interest; the intellectual integrity to follow reasons and evidence wherever they lead.
- **Open-mindedness**- Tolerance of divergent views, self-monitoring for possible bias.
- **Analyticity**-Demanding the application of reason and evidence to resolve problems. Being alert to problematic situations and inclined to anticipate consequences.
- **Systematicity-** Valuing organization, focus and diligence, and persistence in approaching problems of all levels of complexity.
- **Self-Confidence**-Trusting one's own reasoning skills and seeing oneself as a good thinker.
- **Inquisitiveness**- Curious and eager to acquire knowledge and learn explanations even when the applications of the knowledge are not immediately apparent.
- **Maturity of Judgment**- Prudence in making, suspending or revising judgment; an awareness that multiple solutions can be acceptable: an appreciation for the need to reach closure in certain circumstances even in the absence of complete knowledge. (Facione, Facione, & Giancario, 2000)

"Bloom's Taxonomy"- linked to critical thinking (Styron, 2014)

- **Analysing** information by dividing into smaller parts to achieve clear understanding
- **Synthesizing** information by designing a plan or set of operations and combining parts to form a whole
- **Evaluating** information by making judgements and forming opinions

"The ability to reflect on one's own role in the local community and (global) society, continually evaluate and further motivate one's actions, and deal with one's feelings and desires." (Reickmann, 2018, p.45)

Learning Outcomes:

- Be able to recognize, identify and regulate one's emotions and maintain accountable behaviors in school, personal and community contexts.
- Maintain an accurate and positive self-concept, recognize and build on one's strengths
- Demonstrate self efficacy, the ability to achieve a goal, and manage stress
- Exhibit empathy, and appreciate diversity
- Recognize family, school and community supports
- Communicate clearly to express needs and resolve conflict
- Problem solve effectively

(CASEL, 2019)

"the overarching ability to apply different problem-solving frameworks to complex sustainability problems and develop viable, inclusive and equitable solutions that promote sustainable development- integrating all of the above-mentioned competencies." (Reickmann, 2018, p.45)

Learning Outcomes:

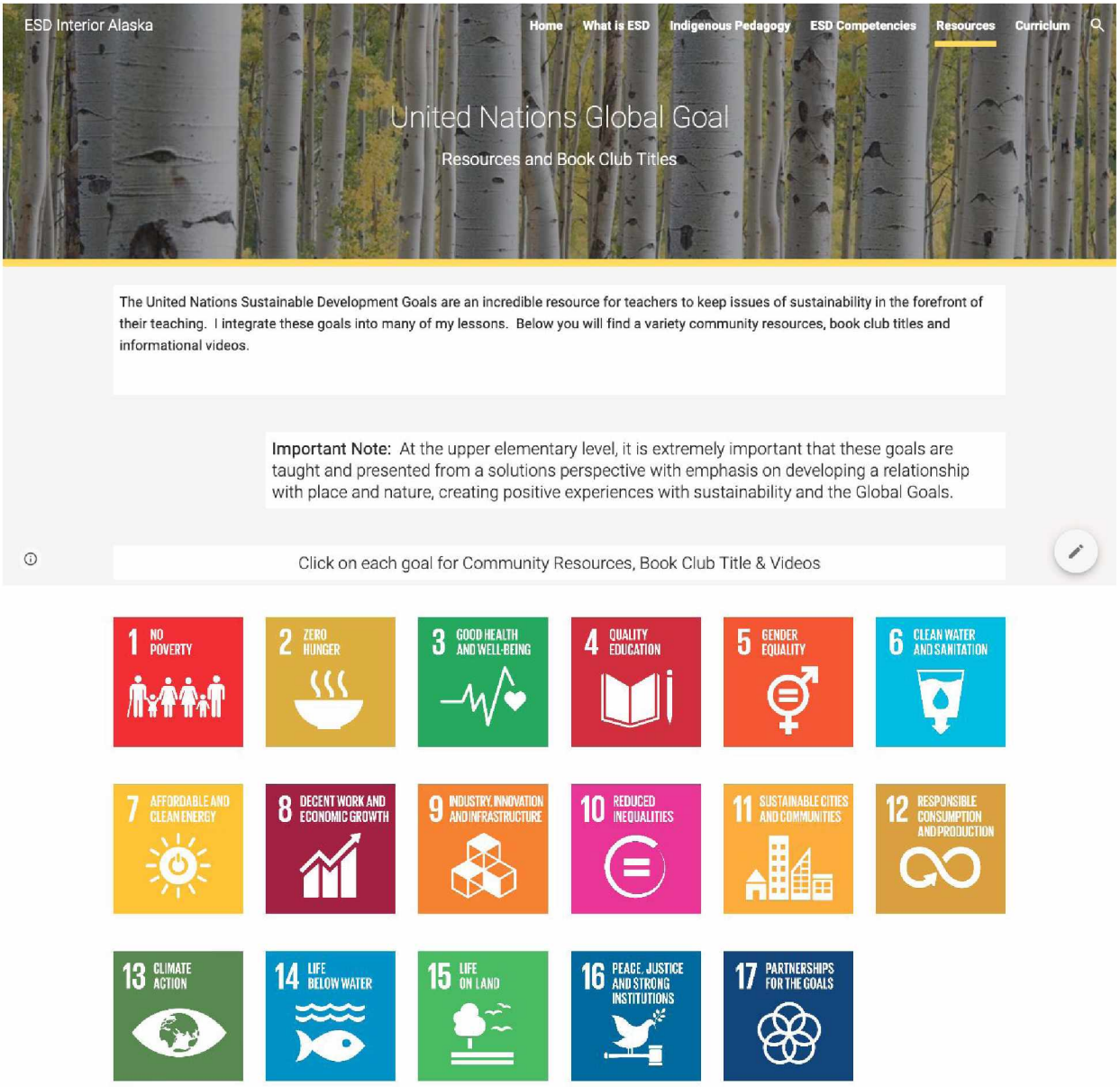
- Students should be able to integrate the 5 key competencies: Systems thinking competence, futures thinking competence, values thinking competence, strategic competence, and collaborative competence towards sustainability research and problem solving.

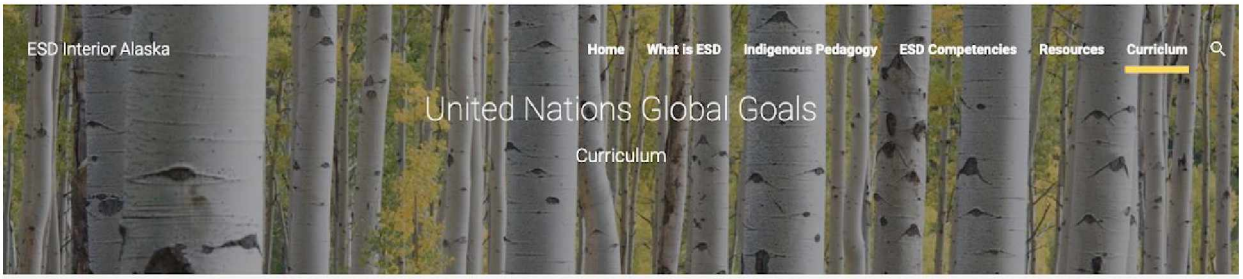
Problem Solving Practices:

- Participatory scenario construction
- Integrated planning
- Backcasting
- implementation sciences
- transition management
- transdisciplinary case study research

https://www.brookings.edu/blog/education-plus-development/2017/10/31/teaching-problem-solving-let-students-get-stuck-and-unstuck/

https://www.edutopia.org/article/problem-solving-elementary-school

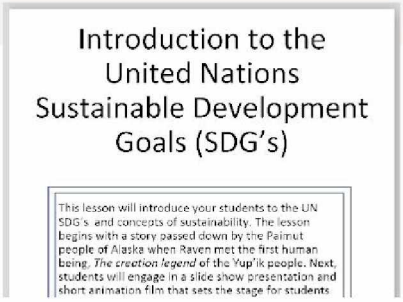

ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Resources
Curriculum
United Nations Global Goal
Resources and Book Club Titles
The United Nations Sustainable Development Goals are an incredible resource for teachers to keep issues of sustainability in the forefront of their teaching. I integrate these goals into many of my lessons. Below you will find a variety community resources, book club titles and informational videos.
Important Note: At the upper elementary level, it is extremely important that these goals are taught and presented from a solutions perspective with emphasis on developing a relationship with place and nature, creating positive experiences with sustainability and the Global Goals.
Click on each goal for Community Resources, Book Club Title & Videos
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS



The United Nations Sustainable Development Goals are an incredible resource for teachers to keep issues of sustainability in the forefront of their teaching practice. I integrate these goals into many of my lessons. Below you will find a variety lessons, some developed locally and others found online. This is a work in progress and open to collaborative efforts.

Important Note: At the upper elementary level, it is extremely important that these goals are taught and presented from a solutions perspective with emphasis on developing a relationship with place and nature, creating positive experiences with sustainability and the Global Goals.

Introduction lessons to the United Nations Global Goals



Click on the goals below to find curriculum associated with each goal

Introduction to United Nations Sustainability Goals

Theme: Introduction to the Sustainable Development Goals

ESD Competencies:
Strategic Thinking
Futures Thinking

Indigenous Pedagogy-
Story Telling

FNSBSD ELA Standards:
(5)2.5.1; (5) 2.10.2; (5)2.11.1;

Essential Goals:

- Introduce students to the concepts of sustainability
- Understand the difference between renewable resources and nonrenewable resources
- Introduce the 17 United Nations Sustainability goals and the 3 pillars of sustainability.

Essential Questions:

- What are the limits to our resources?
- What are nonrenewable vs Renewable resources?
- What are ways we can make a difference in our school and community?

Materials:

- Slide Show presentation

Assessment:

- Service Project
- Exit slips- see how many of 17 sustainability goals they can remember without looking?

allison.wylde@k12northstar.org

Introduction to the United Nations Sustainability Goals

Start by reading or retelling this story- When Raven met the first human being.

This version is retold by Jack Dalton based on the legend passed down by the Paimiut people.

The Creation Legend of the Yup'ik People

http://www.angelfire.com/bc/yupik/create.html

Questions:

Ask students what lesson the humans learned from the Raven?

What clues tell you this story is told from and Alaskan perspective?

At the end the human beings revered Raven, for all he did, even when it meant hurting or scaring them. They always knew he doing what was best for them.

Do you agree? Why or why not?

Slide Show Presentation:

Slide 3-First, ask who knows what natural resources are? Guide them to answer correctly. What does the word natural mean? What does resources mean?

- See how many natural resources they can come up with. This can be a think pair share, partners should try and come up with a list
- Discussion could include the following top 11 used natural resources- students could do some research on each of these, and share with the class.
    - copper- electrical wires, plumbing, roofing, industrial machines;
    - Helium- cooling hadron Collider, superconductors in MRI machines, satellite instruments;
    - Iron, it is all around us, a good conductor makes tools, pipes, steel;
    - Coal- heat source, fuel for electricity production
    - Natural Gas-heating, cooking, making plastics
    - Oil-gas, fuel, asphalt, oil, plastic, rubber
    - Salt-deicer, human food, making rubber
    - Timber-construction
    - Soil- agriculture
    - Water-fresh water is essential for life
- **Slide 4** –Ask students if they no the difference between a renewable vs. nonrenewable resource
    - Renewable-can grow again, or doesn't run out, but we can destroy them.
    - Non renewable- can run out, or be used up.
- **Slide 5**- Hold class discussion on ways we can live more sustainably
    - Steer away from recycling and put more emphasis on reducing and reusing-
    - How can we change the way we live to be more sustainable.
- **Slide 6** -show video https://vimeo.com/138852758
- **Slide 7**- Show students the 17 goals, talk about each.
- **Slide 8**- Ask students to brainstorm realistic projects the class could do in the school and or the community, pick one, set a goal and work towards it as a class. Create a vision for the future of our school/community & talk about strategies for achieving their goal.

Concepts of Sustainability

The Magic Candy Jar

Wouldn't it be cool to have a candy jar that refilled every time you ate a piece.

What would really happen if you continue to eat the candy?

It isn't a sustainable practice to keep eating the candy.

How could this apply to the environment?

The world is like a candy jar that doesn't refill itself

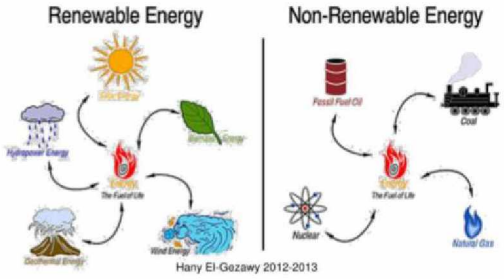
Natural Resources

- Natural resources are things we use that are found in nature, humans do not create them, like water?
- Think-Pair-Share: How many natural resources can you come up with.

Class Discussion: How do we use these resources?

Two Types of Natural Resources

Renewable and non-renewable energy sources



Do we live Sustainably?

- It is like the candy jar, if we use our resources in a way that uses them up or destroyed them it is not sustainable
- What do you think?
- So we need to learn to live in a way that respects our resources and sustains them for current and future use

United Nations Sustainability Goals

https://vimeo.com/138852758

The Goals- What can we do?

1 NO POVERTY

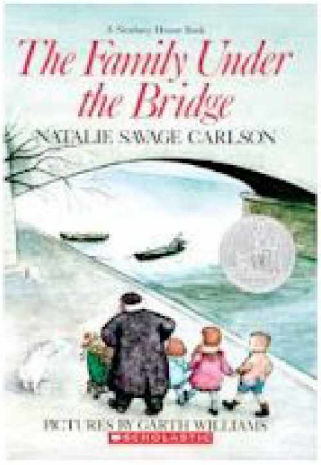
Poverty can be defined as a lack of money and/or vital resources which renders it impossible or challenging for human beings to live with dignity and provide from themselves.

Primary Education- learners are introduced to the different concepts of poverty and to real-life implications of living in poverty. They are also learning about possibilities for reversing this situation and identify actions that support poverty reduction. While doing so they develop confidence in the belief that extreme poverty can be eradicated in their lifetimes.

(UNESCO, 2019)

Book Club Titles

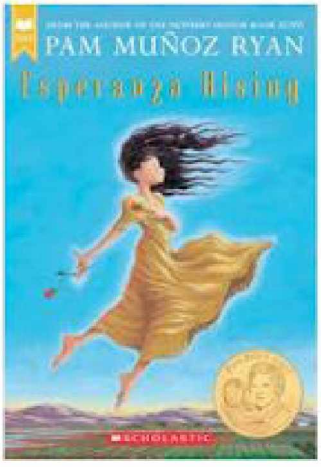
Literature lessons are currently being developed



The Family Under the Bridge

By: Natalie Savage Carlson

Armand, an old hobo, who lives under a bridge in the streets of Paris, manages to keep himself warm, fed and carefree, begging and doing odd jobs on the streets. Then one day just before Christmas a struggling mother and her three children walk into his life. What could one old man do to make their Christmas wish come true.



Esperanza Rising

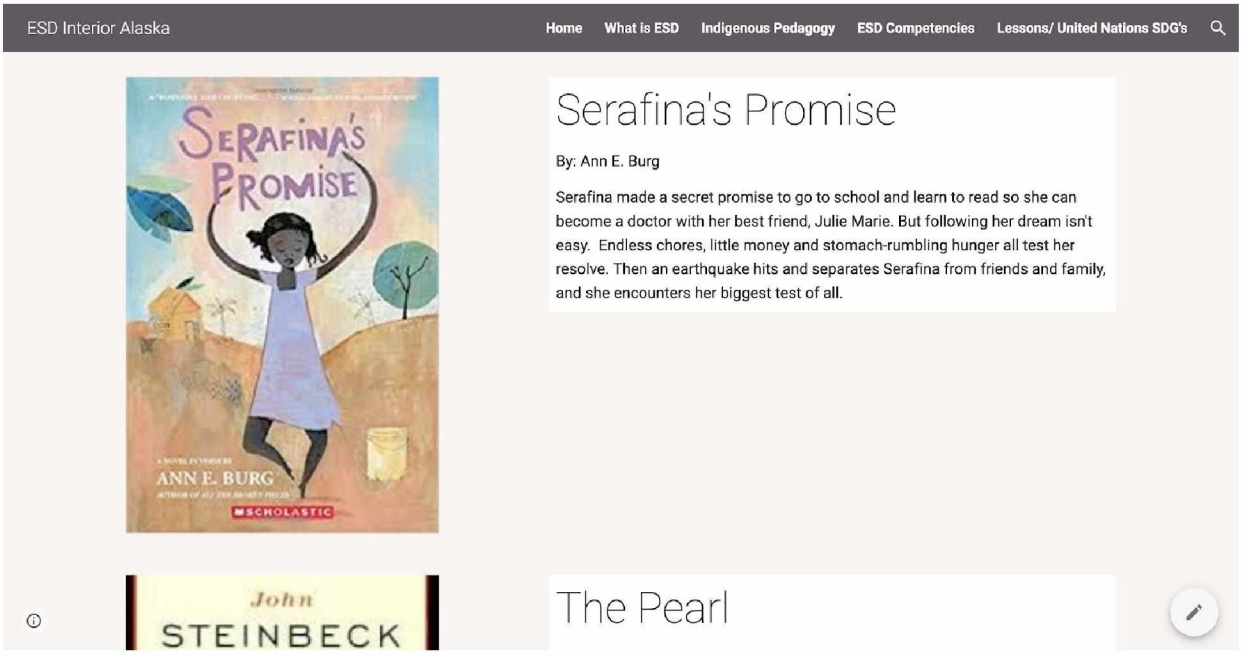
By: Pam Munoz Ryan

Esperanza loved life on her family's ranch in Mexico. She wore fancy dresses and lived in a beautiful home filled with servants. But sudden tragedy shatters her world and forces Esperanza and her Mama to flee to California. They settle in a camp for Mexican farm workers. Esperanza isn't ready for the hard labor, and financial struggles brought on by the Great Depression. Now she must find a way to survive and save her mother.

Serafina's Promise

By: Ann E. Burg

Serafina made a secret promise to go to school and learn to read so she can become a doctor with her best friend, Julie Marie. But following her dream isn't easy. Endless chores, little money and stomach-rumbling hunger all test her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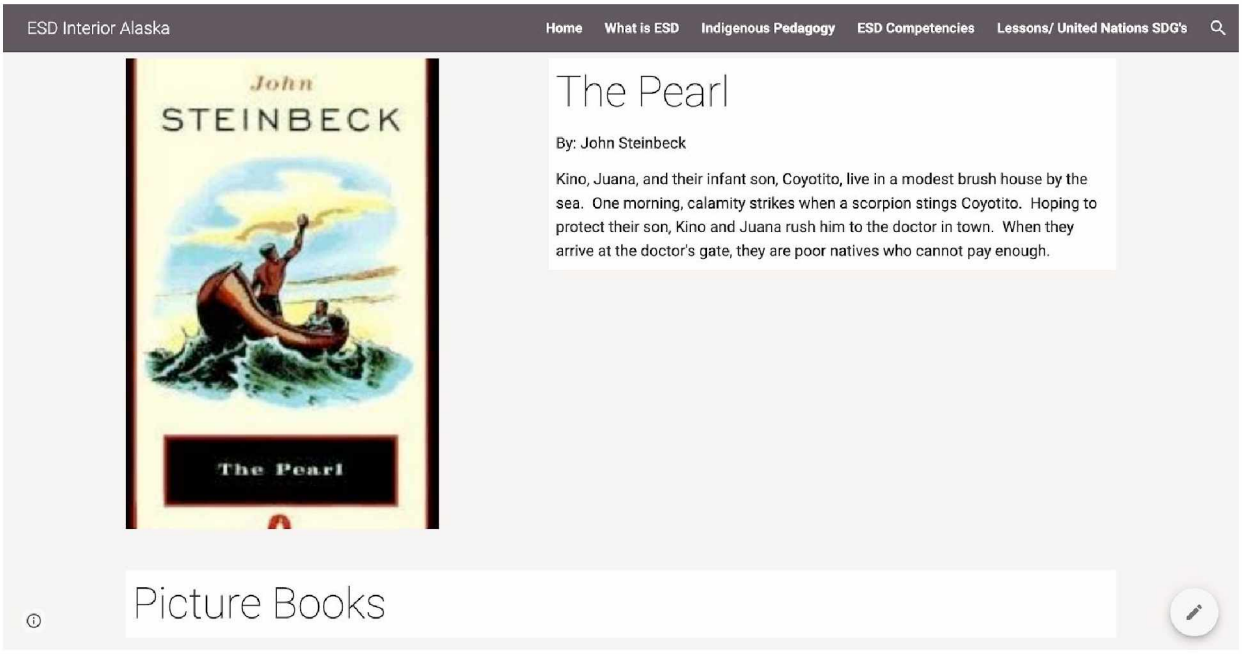
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
SERAFINA'S PROMISE
ANN E. BURG
SCHOLASTIC
Serafina's Promise
By: Ann E. Burg
Serafina made a secret promise to go to school and learn to read so she can become a doctor with her best friend, Julie Marie. But following her dream isn't easy. Endless chores, little money and stomach-rumbling hunger all test her resolve. Then an earthquake hits and separates Serafina from friends and family, and she encounters her biggest test of all.
John
STEINBECK
The Pearl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Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
John
STEINBECK
The Pearl
The Pearl
By: John Steinbeck
Kino, Juana, and their infant son, Coyotito, live in a modest brush house by the sea. One morning, calamity strikes when a scorpion stings Coyotito. Hoping to protect their son, Kino and Juana rush him to the doctor in town. When they arrive at the doctor's gate, they are poor natives who cannot pay enough.
Picture Books


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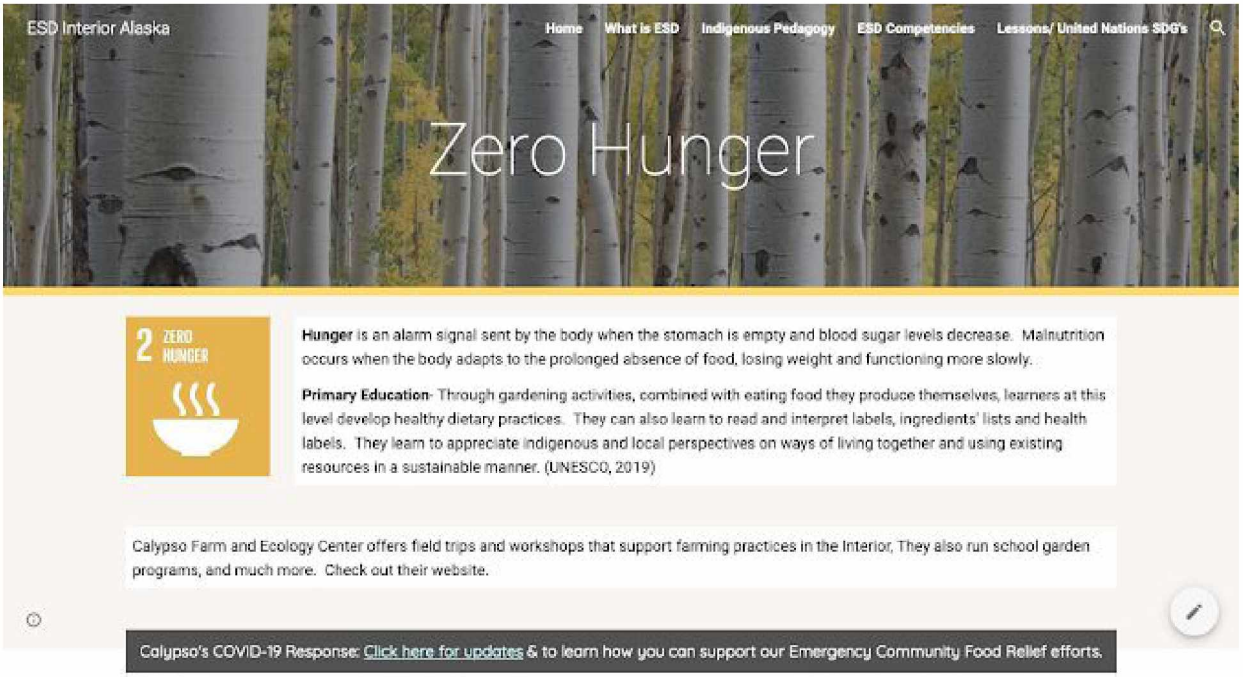
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
MARKET STREET
MATT DE LA PEÑA
CHRISTIAN ROBINSON
A Different Pond
THE HAPPY PRINCE
OSCAR WILDE
Vera B. Williams
A CHAIR FOR MY MOTHER
Nana in the City
WORKING COTTON
Shirley Anne Williams



Classroom groups can volunteer packing food boxes for Elders in around the state.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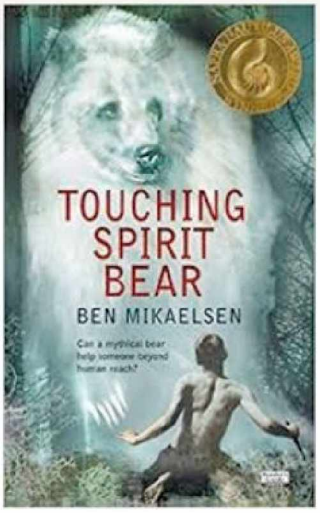
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
STONE SOUP
by Marcia Brown
The Good Garden
How One Family Went From Hunger to Having Enough
Maddi's Fridge
The Lunch Thief
UNCLE WILLIE AND THE SOUP KITCHEN
DyANNE DiSALVO-RYAN
A Kids' Guide to
Hunger & Homelessness

3 GOOD HEALTH AND WELL-BEING

Well-being is a feeling of satisfaction with life, a state characterized by health, happiness, and prosperity. **Good Health** concerns the care of the human body and everything that can be done to protect it from sickness and intoxication and enable access to care.

Primary Education- Learners acquire basic knowledge about mental and emotional health, as well as about sexual and reproductive health and rights. They develop the relevant abilities to express feelings in a healthy way, managing emotional and physical stress, and seeking assistance if necessary. As a result, tolerance, respect and understanding of others' differences and emotions is promoted. (UNESCO, 2019)

Click for Social Emotional Learning during Covid-19 from our school counselor

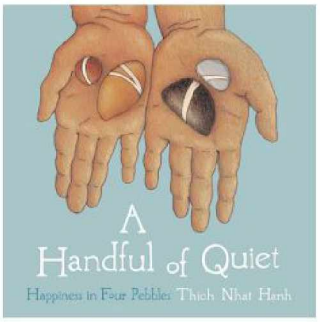


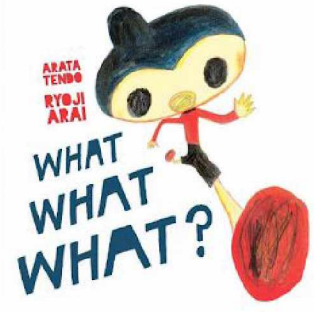
Touching Spirit Bear

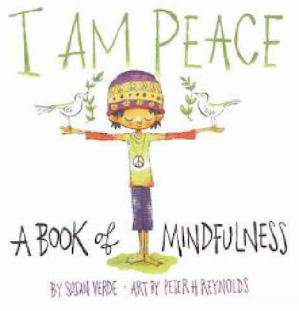
By: Ben Mikaelsen

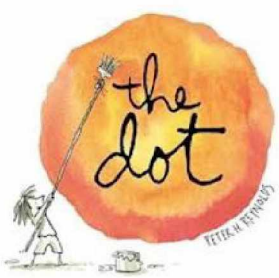
Cole is full of violence, anger and hate, and now he is in the biggest trouble of his life. He is offered Circle Justice, a system based on Native American traditions that attempts to provide healing for the criminal offender, the victim and the community. He is banished to a remote Alaskan Island, where a reluctant Cole begins the healing process.

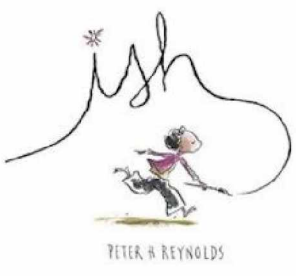
Picture Books

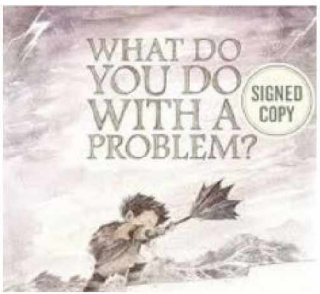


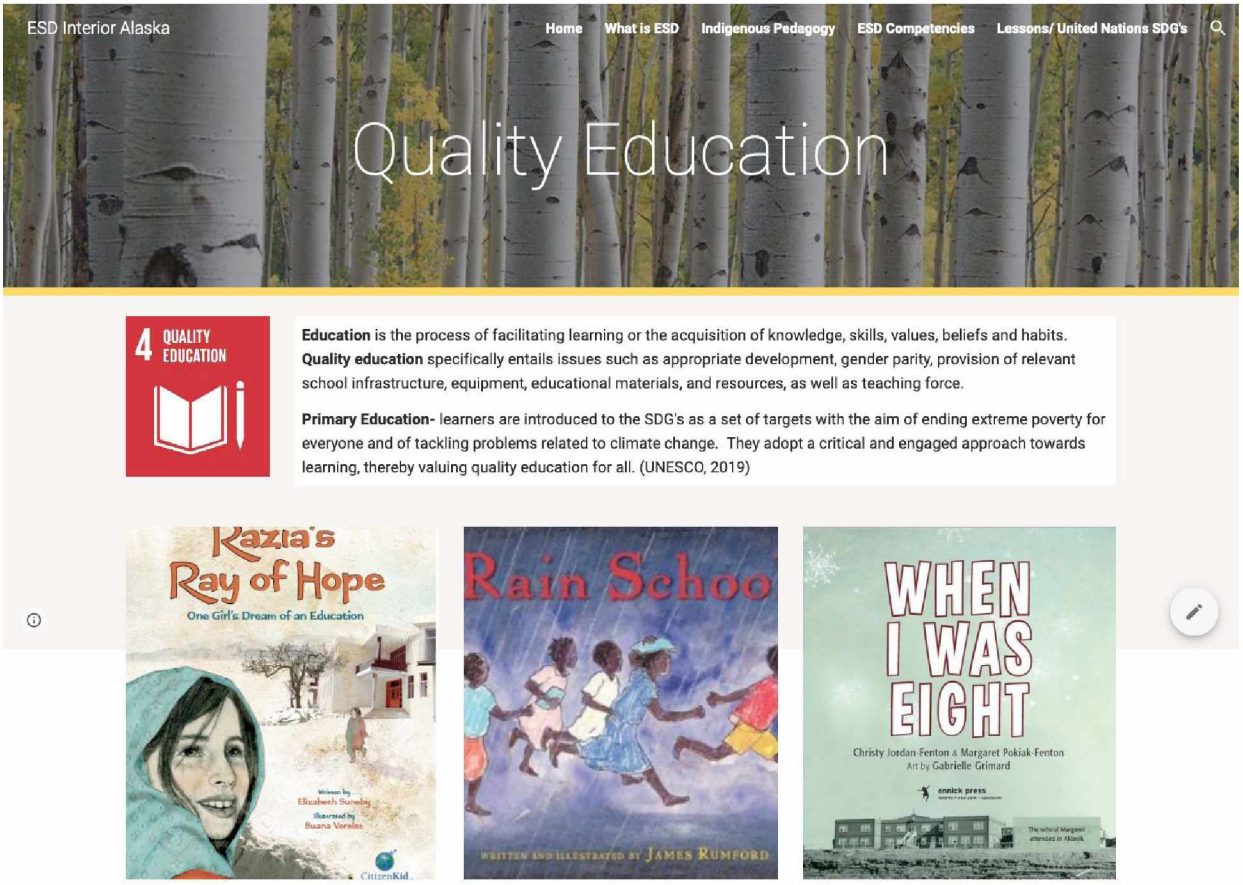











ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
Quality Education
4 QUALITY EDUCATION
Education is the process of facilitating learning or the acquisition of knowledge, skills, values, beliefs and habits. Quality education specifically entails issues such as appropriate development, gender parity, provision of relevant school infrastructure, equipment, educational materials, and resources, as well as teaching force.
Primary Education- learners are introduced to the SDG's as a set of targets with the aim of ending extreme poverty for everyone and of tackling problems related to climate change. They adopt a critical and engaged approach towards learning, thereby valuing quality education for all. (UNESCO, 2019)
Kazia's Ray of Hope
One Girl's Dream of an Education
Rain Schoo
WHEN I WAS EIGHT
Christy Jordan-Fenton & Margaret Pokiak-Fenton
Art by Gabrielle Grimard
annick press

ESD Interior Alaska

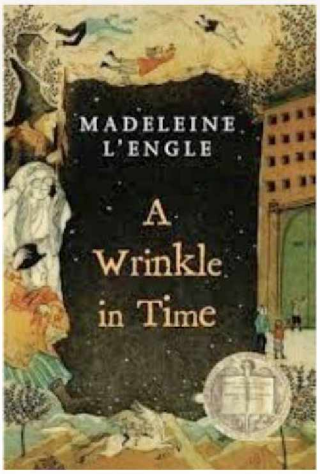
Home | What is ESD | Indigenous Pedagogy | ESD Competencies | Lessons/ United Nations SDG's

Gender Equality

5 GENDER EQUALITY

Gender Equality is a principle that states that all men and women need to be treated equally and to have the same rights despite their biological differences. These should not prevent them from having the same opportunities to succeed in school and in life.

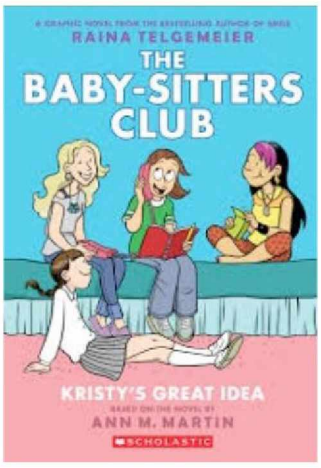
Primary Education-Learners familiarize themselves with the impact of gender roles on identity and rights of girls and boys, thereby acquiring the necessary means to start thinking critically about socially ascribed gender roles and stereotypes in jobs, sports and the family. They are thus able to unfold a degendered understanding of professions, sports and family roles. (UNESCO, 2019)

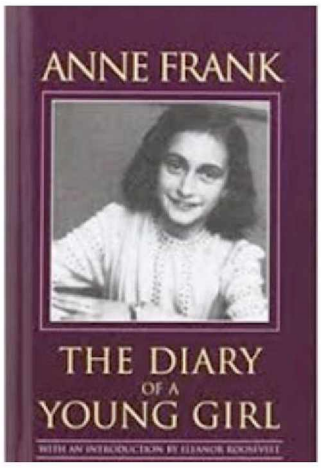


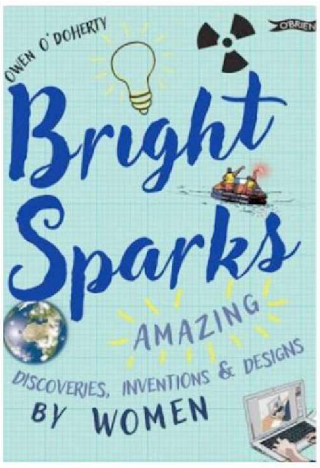
A Wrinkle in Time

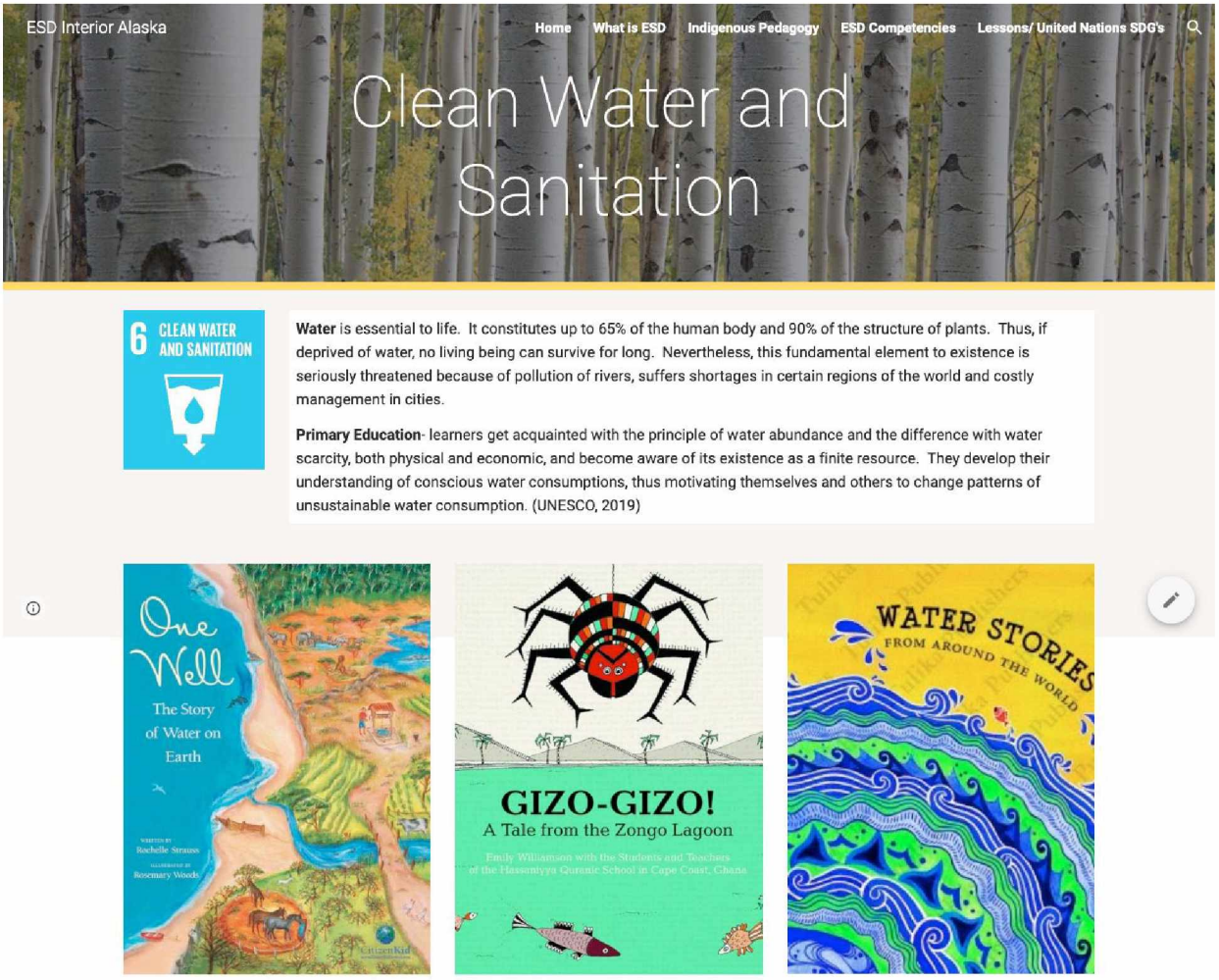
By: Madeleine L'Engle

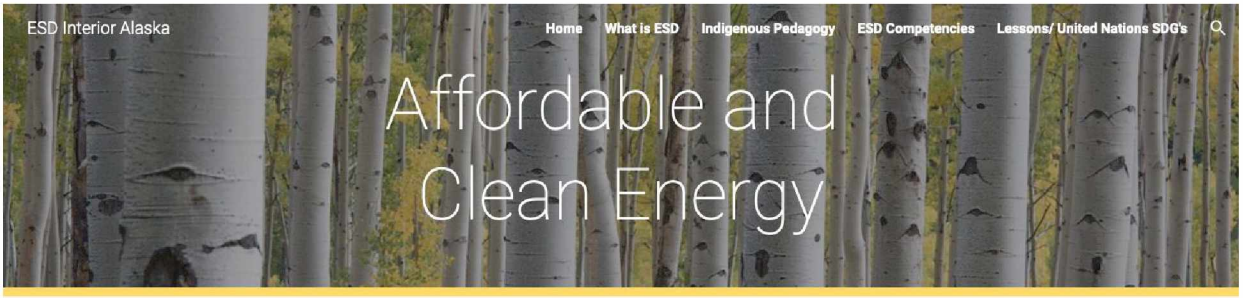
A Science Fiction story of Meg Murry, a high-school-aged girl who is transported on an adventure through time and space with her younger brother Charles Wallace and her friend Calvin O'Keefe to rescue her father, a gifted scientist, from the evil forces that him prisoner on another planet.







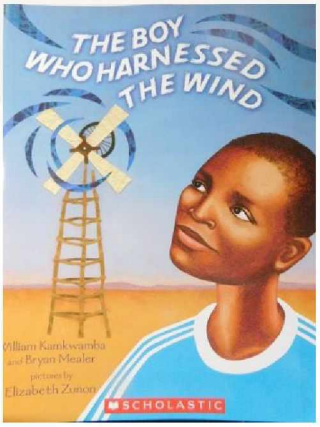

ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
Clean Water and Sanitation
6 CLEAN WATER AND SANITATION
Water is essential to life. It constitutes up to 65% of the human body and 90% of the structure of plants. Thus, if deprived of water, no living being can survive for long. Nevertheless, this fundamental element to existence is seriously threatened because of pollution of rivers, suffers shortages in certain regions of the world and costly management in cities.
Primary Education- learners get acquainted with the principle of water abundance and the difference with water scarcity, both physical and economic, and become aware of its existence as a finite resource. They develop their understanding of conscious water consumptions, thus motivating themselves and others to change patterns of unsustainable water consumption. (UNESCO, 2019)
One Well
The Story of Water on Earth
GIZO-GIZO!
A Tale from the Zongo Lagoon
WATER STORIES
FROM AROUND THE WORLD

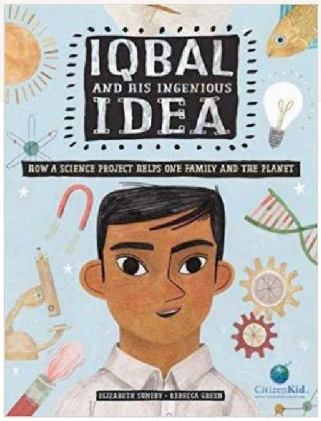


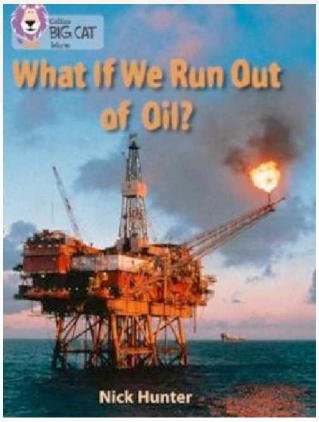
7 AFFORDABLE AND CLEAN ENERGY

Renewable energies are those that can be renewed or regenerated naturally. They can be used without time limit while fossil energies come from sources that will be depleted.

Primary Education- learners get acquainted with different forms of energy production (e.g. fossil fuels, wind energy, solar energy) and their associated technologies, and the reasons why different forms of energy production are best used in different geographies and contexts. They learn to monitor their own energy consumption, including in the classroom setting, thereby equipping themselves with the right tools to adapt their daily living habits and behaviours towards models of sustainable living. (UNESCO, 2019)



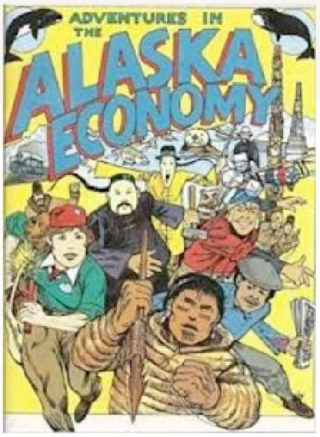




8 DECENT WORK AND ECONOMIC GROWTH

Decent work is held to be a job that allows a person to work in good and safe conditions, to be paid fairly and to provide his or her family with social protection. Decent work allows us to progress from a professional perspective, to be understood in the workplace and gives men and women the same opportunities.

Primary Education- learners develop their understanding of why people work, and the meaning of social enterprises. They learn to understand the relevance of equal access and opportunities to employment for all, while appreciating the value of different forms of work, such as paid work, unpaid care work, voluntary work and creative expression. (UNESCO, 2019)



In this lesson students will learn about the history of Alaska through the driver of economics. They will begin to learn about the concepts of value related to a geographical understanding of natural resources. They will also consider Indigenous perspectives on the colonization of Alaska.

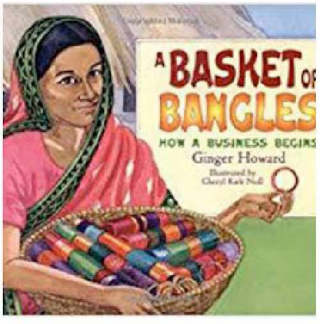
Click the link below for detailed lesson plan

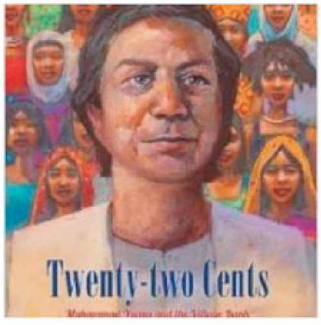
Unit Lesson- Alaska History, Geography and Economy

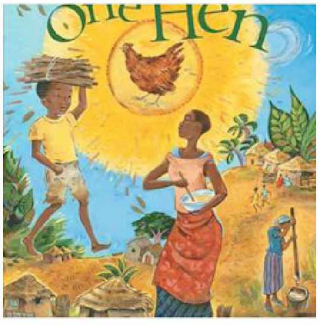
Circular Economy - UK, USA, Europe, Asia & South America - The Ellen MacArthur Foundation

The Ellen MacArthur Foundation works to inspire a generation to re-think, re-design and build a positive future circular economy.

Suggested literature to support this theme







Lesson Unit: Alaska History, Geography &Economy

This unit can be integrated with *Family Under the Bridge,* and *Colonization and Land Acknowledgment*

Theme: Decent Work and Economic Growth SDG 8

ESD Competencies:
Futures Thinking
Strategic Thinking

Indigenous Pedagogy-
Experiential learning

FNSBSD ELA Standards:
5C.1; 5C.2; 5C.3; 5C.4; 5C.5; 5C.6, 5C.7

Essential Goals: The learner will...

- Locate on the map:
  - the 5 regions of Alaska, well known communities, mountains, major bodies of water and rivers
- Develop an understanding of human-environment interactions in the historical context of early Alaska
- Determine impacts resulting from those developments
- Develop a timeline of major events in Alaska
- Economic concepts related to early Alaskan history including responses to fairness, equity and justice
- Determine how groups work to meet individual needs and promote the common good and where they fail to do so
- Review the concept of scarcity and abundance on choice.

Essential Questions:

- How does geography influence the cultural diversity of Alaska?
- What economic incentives brought outsiders to Alaska?
- How were indigenous people impacted by this?
- How does abundance and scarcity affect the value of goods and services?

Materials:

Books:

- Adventure in the Alaska Economy- There is a copy at LMS

Map Supplies:

- Thin board 2ft X 2ft
- Sandpaper
- Gridded map of Alaska- included in this presentation
- Old newspapers
- Acrylic Paint- blue, green, brown, white, yellow,
- Small round stickers for labeling map

Assessment:

Map of Alaska properly labeled
Vocabulary matching
Slide Show of the regions
Bank Ledger Sheets

allison.wylde@k12northstar.org

Lesson Unit: Alaska History, Geography & Economy

Building a Map of Alaska

Map of Alaska: Students will build on this map throughout the unit. Before the lesson starts they will want to build the base of their map and develop the topography. (You can develop any style map you choose, I discovered this map project from Amy Arnesson at Watershed School)

Instructions:

1. You will need a 24"x24" board (thin plywood or board material)-Thin board will warp while drying
2. Lightly sand the surface of the board you are going to put the map on in a circular motion. This will provide a texture to help the newspaper to stick.
3. Draw a 3"x 3" grid in pencil on the top of the board (the side you are going to put the map), students should work in partners to make sure they are measuring accurately and drawing straight lines. This is critical.
4. Label the left side of the board with letters A- H. Label the top of the board with letters 1-8
5. Hand out 8x8 gridded Alaska map, have students work with a pencil, to transfer each square to their map.
6. Once the teacher has checked their work, they can trace over the lines with sharpie.
7. Prepare the paper pulp for students: tear newspaper into small piece, add water and blend till paste like
8. Give each group a container of paper mush, and model the next steps.
9. Squeeze out some of the water from your mush, you don't want it supper wet. Place a thin layer inside the map outline, be careful around the edges to stay in the lines, you don't want water outside of the edges of the map.
10. Next, Project a picture on the board that shows the mountain ranges of Alaska outlined. (Make sure to make the peak of Denali) work on building up the mountain ranges, one range at a time. This can be done over several days if necessary.
11. You can store maps stacked with blocks to space them out from one another.
12. Let map completely dry over several days, these may need to be weighted down to prevent warping..
13. Now the painting can begin (tempura)- paint all of the land green (give a variety of brushes so they can be careful around the edges). Let dry for 30 minutes or so.
14. Paint the mountains and Canada Brown- let it dry a little bit and paint the higher peaks white (Emphasize Denali).
15. Paint yellow around the bottom edges of the mountains, and let the whole thing dry.
16. Students will label and create the keys for their map as we go through the unit. They will number labels and color code them for: Rivers (Blue), Mountains (Orange), communities (white), and Major bodies of water (Green). Students will identify regions (Far North, Interior, Western, South Central, South East on their map keys. Only color coded numbers will be hot glued to the map. They keys are neatly written on notebook paper, or typed. These are then glued to the board, in Canada and on the oceans.
17. Students should finish their maps with a Title, Name and Compass Rose.

Lesson Unit: Alaska History, Geography & Economy

Lesson 1: Regions of Alaska

What is a region and what are the 5 regions in Alaska? Far North/Arctic, Interior, Southwest, Southcentral, Southeast

- Divide the class into 5 groups and assign each group a region to research. They will develop a slide show to teach the rest of the class about their region. They need to include the following:
  - Map with location highlighted
  - Major topographic features, mountains, rivers, etc.
  - Regional climate- all seasons
  - Major cities, or villages
  - Indigenous people of the region and some cultural facts
- Students can use the book Alaska a Land in Motion- Part 3 page 113, and/or do an internet search.
- After each group goes identify the important places that will go on the map, and fill in keys. Students will write numbers on color coded, small stickers that will need to be hot glued in place.

Suggested mapping labels:

Communities per region

Far North
1. Savoonga
2. Nome
3. Kotzebue
4. Point Hope
5. Noatak
6. Utqiagvik/Barrow
7. Prudhoe Bay
8. Kaktovik
9. Anaktuvuk Pass
10. Arctic Village
11. Ft. Yukon
12. St. Michael

Interior
13. Galena
14. McGrath
15. Tanana
16. Nenana
17. Fairbanks
18. Delta Junction
19. Tok

Western
20. Mekoryuk
21. Toksook Bay
22. St. Mary's
23. Bethel
24. Dillingham
25. Naknek
26. Unalaska
27. Sand Point
28. Kodiak
29. Yakutat
30. Attu
31. Kiska

South Central
32. Homer
33. Anchorage
34. Wasilla
35. Glenn Allen
36. Valdez
37. Cordova
38. Whittier

Southeast
39. Skagway
40. Juneau
41. Sitka
42. Wrangell
43. Ketchikan
44. Metlakatla
45. Dyea

Key Understanding, writing: Arctic Alaska was isolated from the rest of Alaska because of its harsh environment. Now it is a giant in the oil industry. Oil is really important for Alaska and the United States Economy. Although oil production is good, there are some negative effects. Using internet resources brainstorm negative effects of the oil industry, and then write a paragraph. Remind students to use credible sources and to site them in their work.

Suggested sources:

https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.files/fileID/14522

https://www.scienceforkidsclub.com/oil.html

Map options:

Mountains
1. Brooks Range
2. Alaska Range
3. Nulato Hills
4. Kuskokwim Mountains
5. White Mountains
6. Chugach Mountains

Water
1. Beaufort Sea
2. Chukchi Sea
3. Bering Sea
4. Norton Sound
5. Bristol Bay
6. Gulf of Alaska

Rivers
1. Yukon River
2. Koyukuk River
3. Porcupine River
4. Tanana River
5. Sag River
6. Kuskokwim River
7. Nushagak River
8. Susitna River
9. Copper River

Lesson Unit: Alaska History, Geography & Economy

Book: Adventures in Alaska's Economy- Reading and discussion questions

Episode 1: Pillagers of the North- L.A connection-Note vivid word choice.

Discussion Questions:

Why did the villagers use everything efficiently with no waste?

How did they build their homes, and boats and how did their environment influence this?

Where did they get their foods, and what types of things did they eat?

What was special about the Baidarka?

How did life change when the Russians showed up?

What were the Russians after?

What is a theory? A supposition or system of ideas intended to explain something, especially one based on general principles independent of the thing to be explained. Ex. Darwin's theory of evolution.

What is the theory about how the first humans came to North America?

If you want to explore more on the Bering Land Bridge check out the NPS sites

https://www.nps.gov/bela/learn/historyculture/other-migration-theories.htm

https://www.nps.gov/bela/learn/historyculture/the-bering-land-bridge-theory.htm

Episode 2: The Aleut meets Baranov

In this chapter students are introduced to concepts of economics. Go over what economic concepts before reading.

Vocabulary:

Economics: the brand of knowledge concerned with the production, consumption and transfer of wealth.

Incentives- a thing that encourages on to do something.

Common property resources- is something of value that no one owns, ex. Wild animals such as sea otter.

Discussion Questions:

What was the difference between Baranov and the earlier Russian explores and fur traders?

What made the fur trade profitable for Baranov?

What happened to the profitability of the furs the farther they went from Kodiak? Why?

What did the Tlingits have that the Aleuts didn't when it came to defending their lands?

What happened to the sea otters as a result of all of this?

What impacts did this have on the Indigenous peoples of the region?

Have students Begin a **timeline of events**- (appendix: dates and events from the story are located at the end).

Lesson Unit: Alaska History, Geography & Economy

Episode 3: The Aleut Hunts Whales in Arctic Graveyard

Vocabulary:

Capital Resources- are man made things that are used to enhance production. Tools, spears, and cooking utensils are examples of capital resources that were use by Alaska Natives.

Natural Resources- are materials or things that people use from earth. There are two types of natural resources.

Renewable natural resources are those that can grow again or never run out. For example. Air, water, trees, sun, wind The other kind are **Non-renewable resources**, which can eventually run out or be used up. They usually come from the ground such as fossil fuels like: coal, petroleum, and natural gas (Smith, 2006).

Discussion Questions:

Why did the Russians continually need the support of the Indigenous people and why did the Indigenous people give it?

Why were whales valuable and what happened to the industry and the whales?

Why is the great Bowhead whale more valuable than the right whale?

Give Students an Exit slip: Ask them to identify Capital resources and natural resources that we have read about so far. Ask if the natural resources they listed are renewable or nonrenewable?

Episode 4: William Perry Finds Something Better than Gold in: Icy Treasure

Vocabulary:

Entrepreneurs- a person who organizes and operates a business or businesses, taking on greater than normal financial risks in order to do so.

Specialize- confine oneself to providing a particular product or service.

Competition- the activity or condition of competing, ex. Companies selling the same thing.

Productivity- the state or quality of producing something

Value- the monetary worth of something.

Exchange- an act of giving one thing and receiving another.

Secondary Effect- something that happens as a result of something else.

Scarcity- the state of being scarce or in short supply.

Discussion Questions:

Where were merchants on the west coast getting ice from ?

When something is scarce, what happens to the price of it?

Compare and contrast William's vs. Boss Tate's business strategy for acquiring and selling ice?

What ended the success of William's ice business?

How has the point of view of this episode changed from previous episodes?

What impacts do you think this had on Indigenous people?

Lesson Unit: Alaska History, Geography & Economy

Episode 5: *The One Paper Kid Battles the Elements in the Rush for Gold*

Investment: The action or process of investing time or money for profit or material result

Discussion Questions:

How did the gold rush provide other opportunities for entrepreneurs?

Why do you think everyone had to have a years worth of gear to travel the Chilkoot Trail?

How did increased competition affect the egg market?

What are some other goods or services you can come up with that the minors might need or want, think in terms of scarcity?

What perspective is missing from the story?

Episode 6: *Yin and Yang Smell Success*

Discussion Questions:

What invention opened up the Alaska Salmon Industry? Explain how it changed things.

How does production affect the market value?

What role does technology play in production?

Why is it necessary to manage some natural resources? Use salmon, whale and otters as examples.

What is the difference between the way Indigenous people used Salmon vs. Europeans

Episode 7: *Yang Reshapes Alaska*

Vocabulary:

Labor- human physical and mental effort used in creation of goods and services (Business Dictionary, 2020).

Infrastructure- the basic and organizational structures and facilities needed for operation of a society or enterprise.

Socialism- a political and economic theory of social organization which advocates that the means of production, distribution, and exchange should be owned or regulated by the community as a whole.

Free enterprise system- a type of economy where products, prices and services are determined by the market, not the government.

Discussion Questions:

Who is E.T. Barnette and what is his significance to Fairbanks?

Who was Felix Pedro?

What are the different ways to find gold, why was it difficult to find in the Tanana Valley?

How did they set about building the railroad?

How did Yang change his labor model to increase productivity?

What towns appeared as a result of the railroad?

What were some of the challenges faced in building the railway?

Lesson Unit: Alaska History, Geography & Economy

Episode 8: *Dynamite Dinah Battles the Axis Powers in: Fortress Alaska*

Discussion Questions:

Why did the military need another port in Alaska?

Why was the Alaska Highway built?

How was Alaska significant to WWII, name at least 2 reasons?

How did the war benefit Alaska's economy?

What impacts did the war have on indigenous people?

Further explore the effects of war on Indigenous people

https://www.nps.gov/articles/aleu-mobley-intro.htm

Suggested Activity: Have students draw their own cartoon to add the Indigenous perspective to the book.

Episode 9: *A Battle Royal Rages in the quest for statehood*

Vocabulary

Contiguous-sharing a common border or touching

Discussion Questions:

What major events in Alaska's history increased populations?

What was the argument for and against statehood?

What steps did the people take to move toward statehood?

What was the indigenous perspective on statehood, was their voice considered?

Extensions

Video on Alaska Lands

https://www.youtube.com/watch?v=50_kse-Uh-g&t=1s&disable_polymer=true

ANWR- https://www.youtube.com/watch?v=bTdOrHxIto4

Arctic Village perspectives: https://www.youtube.com/watch?v=pSin-ZGRbJ4

Alaska Constitution:

https://ltgov.alaska.gov/information/alaskas-constitution/

Art Project- Here is a lesson from Sealaska Heritage Formline Art Kit- https://www.sealaskaheritage.org/sites/default/files/Sealaska%20Heritage%20Formline%20Art%20Kit%20ONLINE%20low%20res.pdf

Lesson Unit: Alaska History, Geography & Economy

Activity: Concepts of Scarcity and Abundance- Becoming and Entrepreneur

Materials: Blocks a variety of colors and quantity, Bank ledger sheet

Opening- Ask students to name items that kids their age are trading today. Discuss the following:

- Why do you like these items?
- What would happen if you found out that your best friend had the one you really wanted?
- What if you learned that there was a big room full of these things in the school?

Activity:

- Use different colored blocks or other available objects in differing levels of abundance. Ex. Red can be the most abundant, and yellow the most scarce, with other colors in between levels.
- Distribute the items at random throughout the class as that each student as the same # of items in varied colors.
- Ask students to trade with one another. the goal being to try and have at least one of each color.
- Stop the activity after about ten minutes. Discuss the trading process with the class. Which colors were the easiest to get? Which were the hardest? Why do they think this was the case?

Building a Business: Ask students:

What important businesses do communities tend to have? What would have been useful around 1902 when gold was discovered in Fairbanks? Brainstorm a list for students on the board. Remind them of William Perry and the other entrepreneurs in the story and how lots of secondary business started up as a result of gold.

Day 1: Now, they will come up with a business model for a startup. They can work independently or with a partner for this project. Each business will receive $1000 for start up money. They will need to purchase materials and land to build their business. Encourage them to think of and purchase all they will need, they should fill in a ledger for their expenses, once they have thought through their ideas thoroughly. They can make signs and price lists for their goods or services. They can modify prices and products as they see fit, once students start shopping.

Day 2: Give students another $1000 to go around and shop. They **must** purchase food, clothing, shelter, and entertainment. They need to keep track of their spending and earnings. Students may have to alter prices or change products based on the other business.

Closure: Whole class reflection/discussion.

Awesome video on 5th grade entrepreneur https://www.youtube.com/watch?v=1H4R5e64NDE

Modification: You could elaborate on this concept and have envelopes with different start up amounts, and initial start up prices set.

Futures Thinking: What types of start up business could we use today. Address some of the problems we face as a society. How could we design business to fix these problems. How could we change business models today to reflect a better future.

This discussion leads into a lesson on circular economies- Students can do the same activity, but design startups in the model of a circular economy.

See unit on **CIrcular Economy** for more detailed lesson and understanding.

Banking Ledger

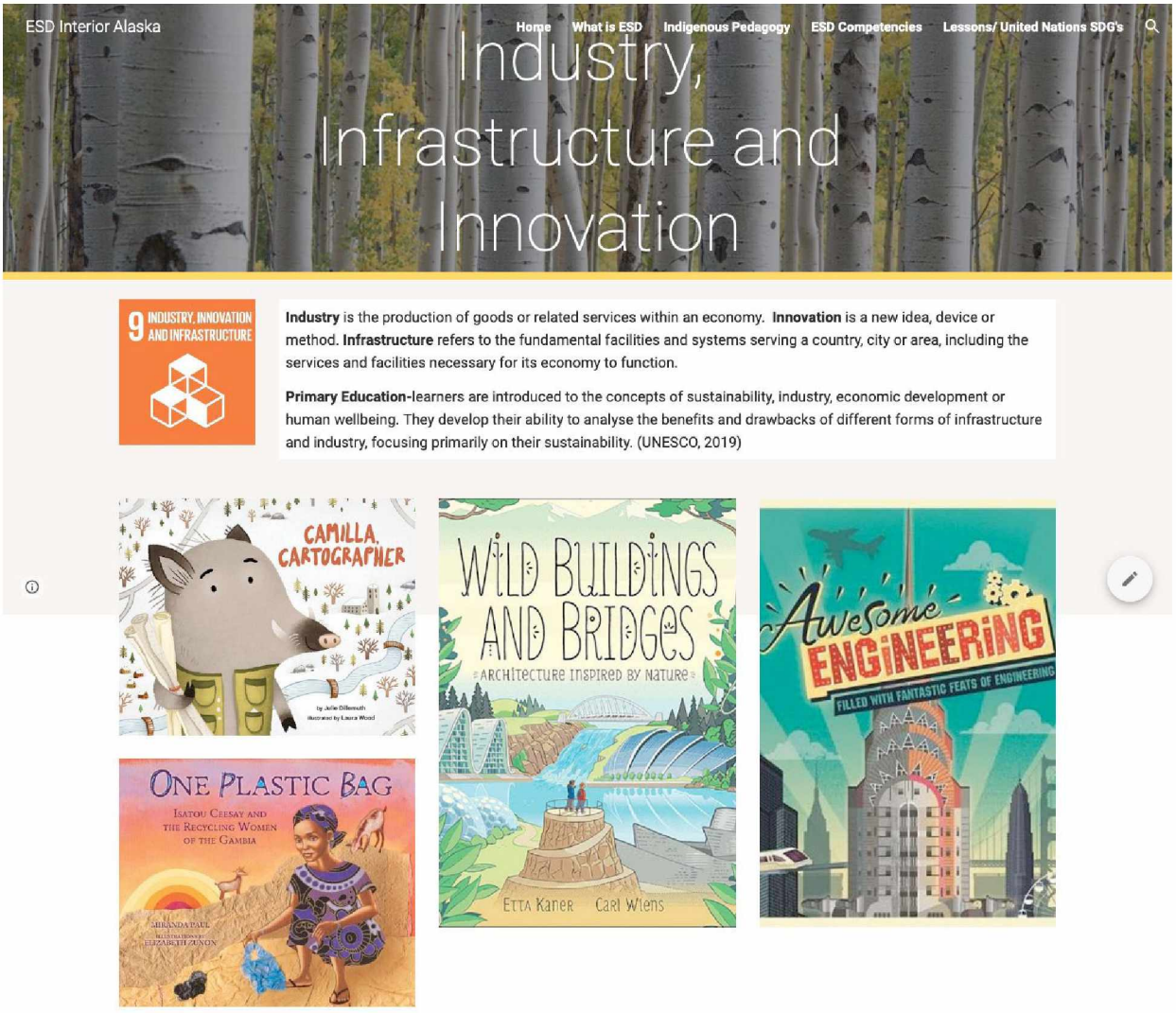
Business Name: _____

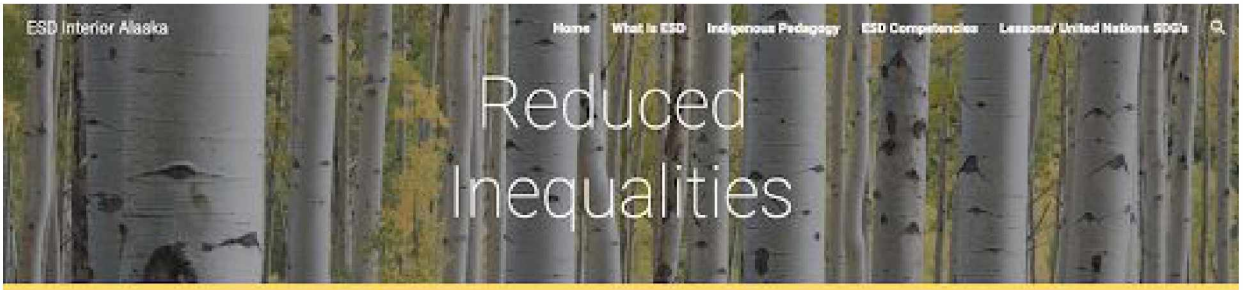
Owner/s:_____

Date	Item Description	Deposit	Withdrawal	Balance

Timeline

- Ancient Times: First humans crossed the land Bridge of what is now called Beringia
- 1741- First Russians discovered Alaska
- 1790 Alexander Baranov ran the Russian colony along the Gulf of Alaska
- 1800 Sea otter populations were wiped out from Kodiak to Yakutat
- 1848 First Yankee whalers entered the Bering Sea
- 1849 Gold discovered in California
- 1850- No refrigeration, people relied on ice from northern regions.
- 1867 United States purchased Alaska from Russia.
- 1878 first commercial salmon canneries opened in Southeast Alaska.
- 1884- First Organic Act- Provided Alaska with basic government, led by a governor.
- 1897 Klondike Goldrush
- 1901 The White Pass Railway was built to connect Skagway to the gold field of the Yukon
- 1906- Alaska was able to have delegates in Congress (He wasn't able to vote)
- 1912- Second Organic Act- Made Alaska a territory of the U.S. and established a legislature. Now laws could be made and taxes collected.
- 1915-1923 Alaska Railroad 500 miles long from Seward to Fairbanks
- 1914-1918 WWI
- 1916 first statehood bill by James Wickersham (failed)
- 1941 Bombing of Pearl Harbor
- 1939-1945 WWII
- 1942 Dutch Harbor was bombed and Japanese occupied the islands of Attu and Kiska
- 1955-1956 Alaska constitutional convention
- 1959 Alaska became a state

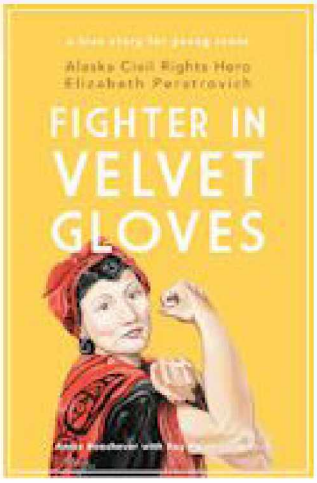

ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
Industry, Infrastructure and Innovation
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
Industry is the production of goods or related services within an economy. Innovation is a new idea, device or method. Infrastructure refers to the fundamental facilities and systems serving a country, city or area, including the services and facilities necessary for its economy to function.
Primary Education-learners are introduced to the concepts of sustainability, industry, economic development or human wellbeing. They develop their ability to analyse the benefits and drawbacks of different forms of infrastructure and industry, focusing primarily on their sustainability. (UNESCO, 2019)
CAMILLA CARTOGRAPHER
WILD BUILDINGS AND BRIDGES
ARCHITECTURE INSPIRED BY NATURE
ETTA KANER
CARL WIENS
AWESOME ENGINEERING
FILLED WITH FANTASTIC FEATS OF ENGINEERING
ONE PLASTIC BAG
ISATOU CEESAY AND THE RECYCLING WOMEN OF THE GAMBIA



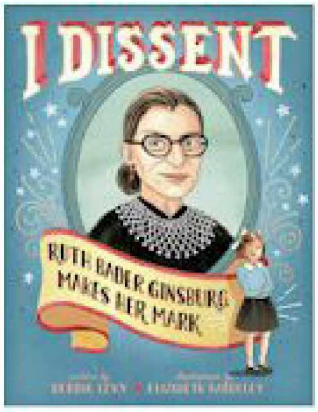
10 REDUCED INEQUALITIES

Social equality is a state of affairs in which all people within a specific or isolated group have the same status in respect to civil rights, freedom of speech, property rights and equal access to social goods and services. It includes concepts of health equity, economic equality and other social securities. It also entails equal opportunities and obligations, and so involves whole security.

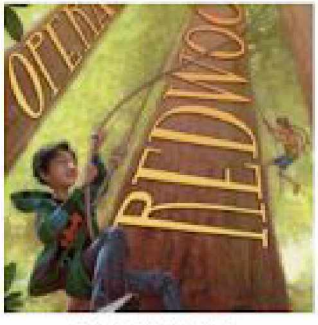
Primary Education-Learners get acquainted with the links between education and inequality, with the double dimension of education as both a factor that conditions inequalities later in life (e.g. through access to formal jobs) and a powerful instrument for advancing equity and impacting on income. They learn to express views on why a particular inequality is negative and develop solutions for reversing this kind of situation, while respecting diversity and the choices of others. (UNESCO, 2019)



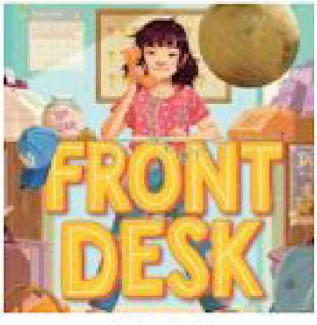
Fighter in Velvet Gloves



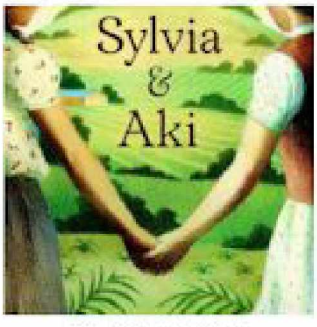
I Dissent: Ruth Bader Ginsburg



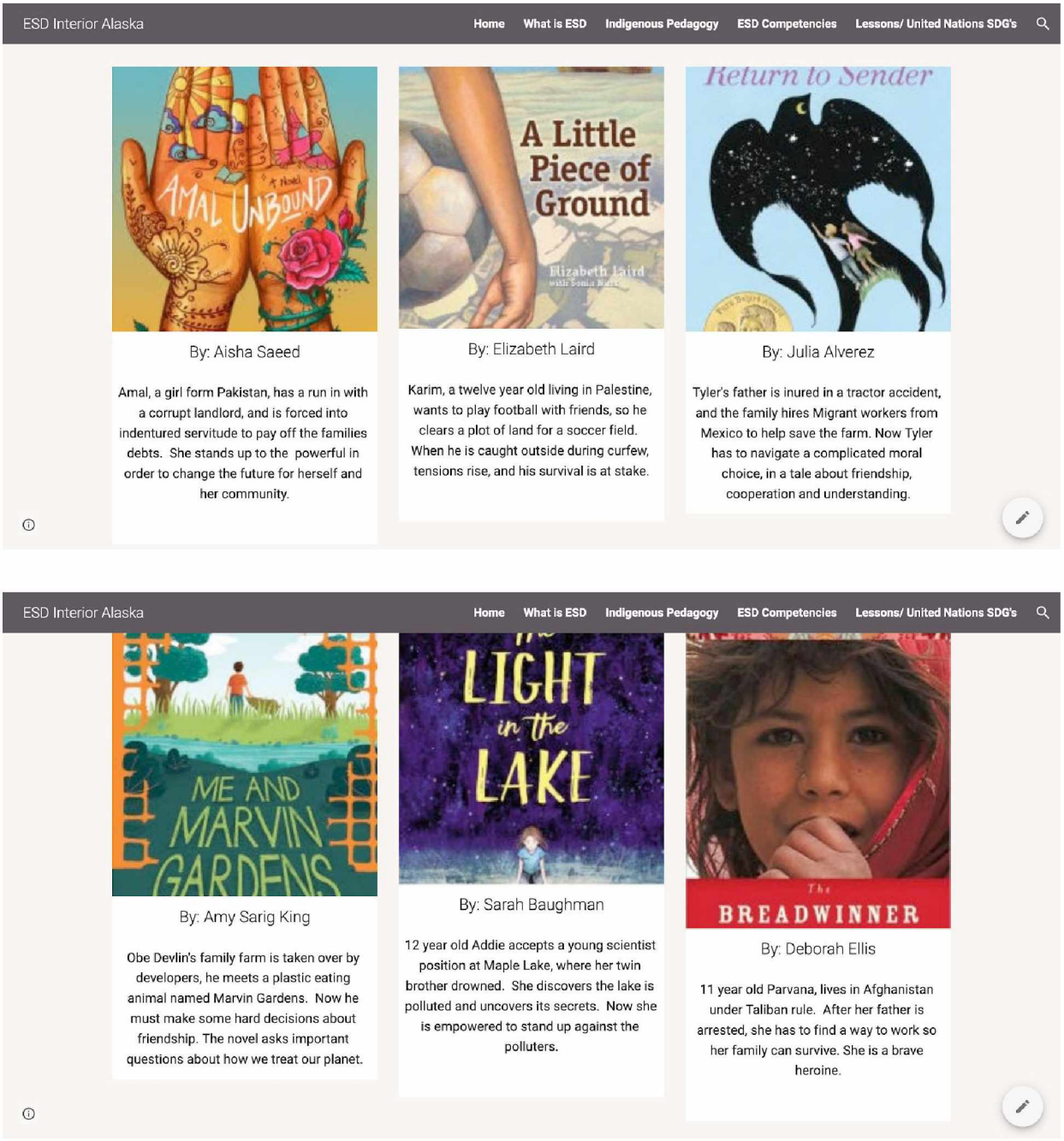
By: S. Terrell French

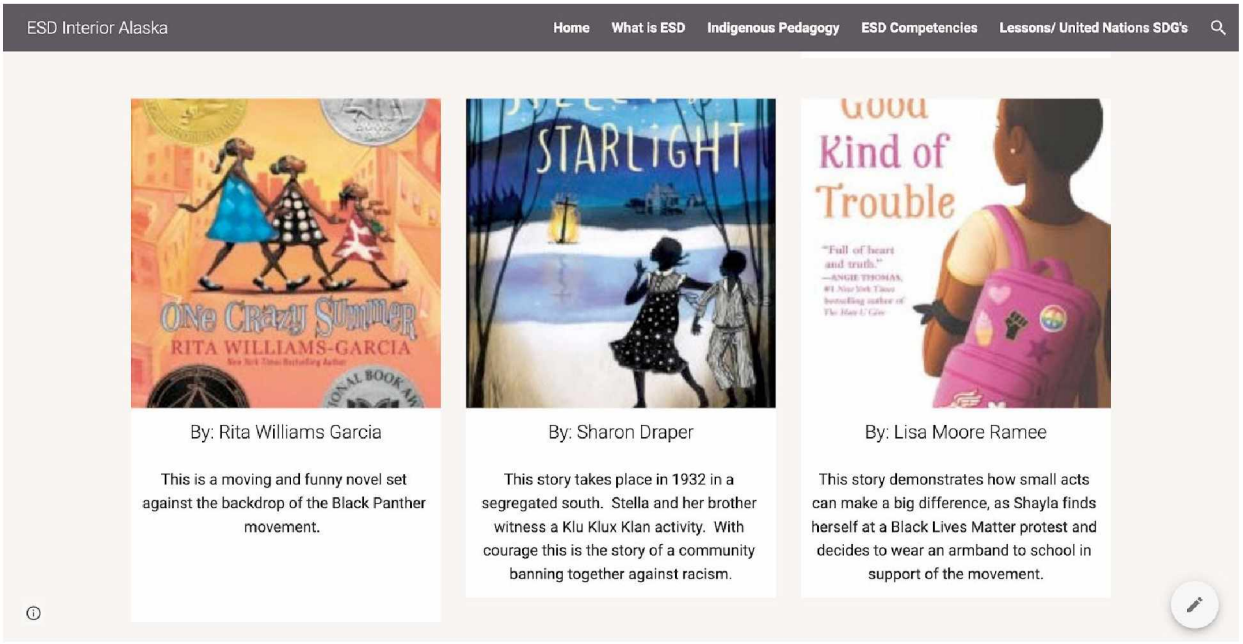


By: Kelly Yang



By: Winifred Conkling

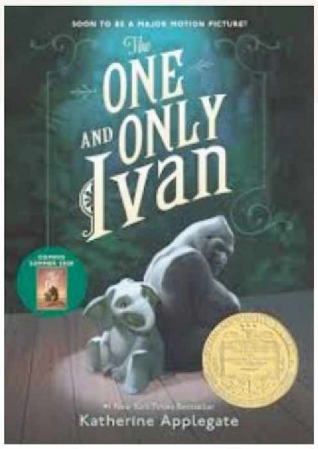

ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
AMAL UNBOUND
A Novel
By: Aisha Saeed
Amal, a girl form Pakistan, has a run in with a corrupt landlord, and is forced into indentured servitude to pay off the families debts. She stands up to the powerful in order to change the future for herself and her community.
A Little Piece of Ground
Elizabeth Laird
By: Elizabeth Laird
Karim, a twelve year old living in Palestine, wants to play football with friends, so he clears a plot of land for a soccer field. When he is caught outside during curfew, tensions rise, and his survival is at stake.
Return to Sender
By: Julia Alverez
Tyler's father is inured in a tractor accident, and the family hires Migrant workers from Mexico to help save the farm. Now Tyler has to navigate a complicated moral choice, in a tale about friendship, cooperation and understanding.
ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
ME AND MARVIN GARDENS
By: Amy Sarig King
Obe Devlin's family farm is taken over by developers, he meets a plastic eating animal named Marvin Gardens. Now he must make some hard decisions about friendship. The novel asks important questions about how we treat our planet.
LIGHT in the LAKE
By: Sarah Baughman
12 year old Addie accepts a young scientist position at Maple Lake, where her twin brother drowned. She discovers the lake is polluted and uncovers its secrets. Now she is empowered to stand up against the polluters.
The BREADWINNER
By: Deborah Ellis
11 year old Parvana, lives in Afghanistan under Taliban rule. After her father is arrested, she has to find a way to work so her family can survive. She is a brave heroine.


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
ONE CRAZY SUMMER
RITA WILLIAMS-GARCIA
By: Rita Williams Garcia
This is a moving and funny novel set against the backdrop of the Black Panther movement.
STARLIGHT
By: Sharon Draper
This story takes place in 1932 in a segregated south. Stella and her brother witness a Klu Klux Klan activity. With courage this is the story of a community banning together against racism.
Kind of Trouble
By: Lisa Moore Ramee
This story demonstrates how small acts can make a big difference, as Shayla finds herself at a Black Lives Matter protest and decides to wear an armband to school in support of the movement.

11 SUSTAINABLE CITIES AND COMMUNITIES

A **sustainable city** is one that respects sustainable development priorities from their social, economic and environmental perspective, and that allows its inhabitants to live in good conditions and in harmony with their surrounding nature.

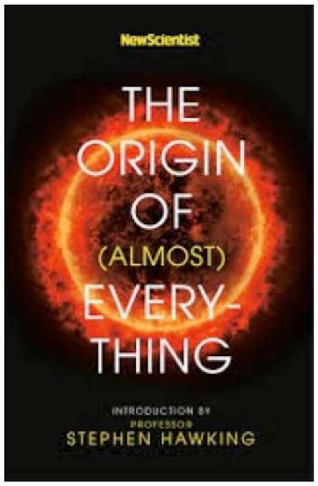
Primary education- Learners get acquainted with the nature and components of cities and of our basic needs as humans, including for food, housing, energy, transport and water. They develop their understanding of the multicultural nature of cities and towns, while becoming aware of the importance of sustaining their immediate natural environment. (UNESCO, 2019)

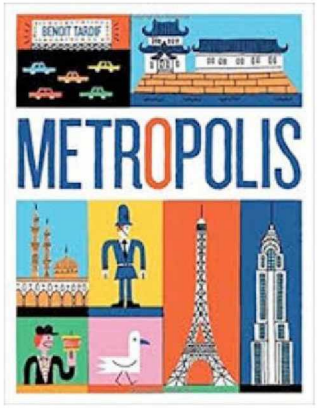


The One and Only Ivan

By: Katherine Applegate

Ivan has spent 27 years behind the glass walls if his enclosure at the shopping mall. He hardly ever thinks about the jungle until he meets Ruby, a baby elephant taken from the wild. Now he is forced to see his home, and his art through new eyes.





12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Sustainable consumption brings an awareness to students about the use of services and their products which respond to our basic needs and bring a better quality of life to people. This type of consumption minimizes the use of natural resources and toxic materials and reduces emissions of waste over the life cycle of the service or product so as not to jeopardize the needs of future generations.

Sustainable Production is the creation of goods and services using processes and systems that are non-polluting, that conserve and preserve energy and natural resources, are economically viable, safe and healthy for workers and consumers, and are socially and creatively rewarding.

Primary Education-Students can assess their ecological footprint, participate in recycling, composting, and are able to make informed purchasing decisions according to life cycle implications. (UNESCO, 2019)

Green Star of Interior Alaska

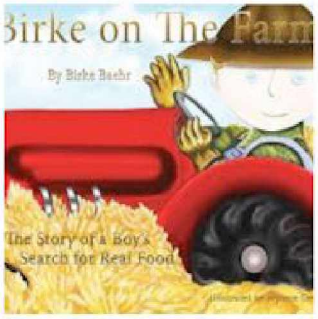
Is a local nonprofit organization with programs designed to encourage reuse of materials, reduce unnecessary waste, and increase recycling efforts in the Fairbanks area.

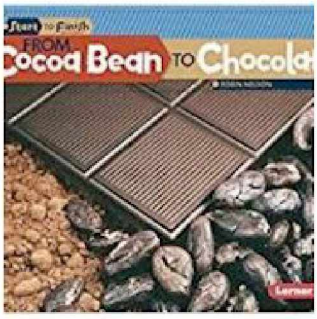
iagreenstar.org/

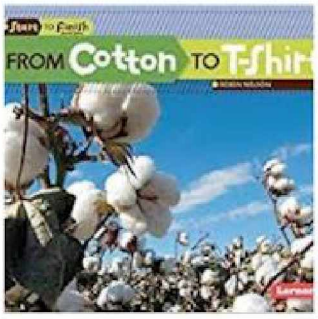
Earth Day Every Day Curriculum

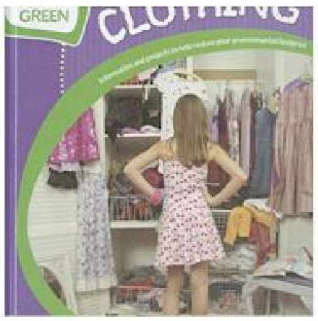
The button above will take you to Green Stars Waste reduction, recycling education curriculum

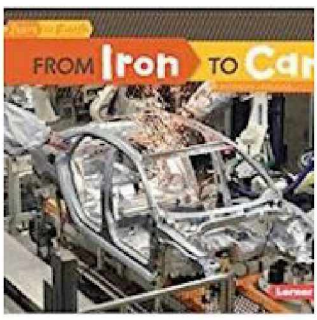
Book Selections that support responsible consumption and production

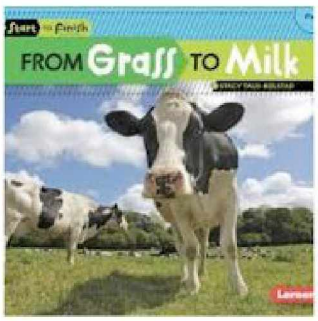


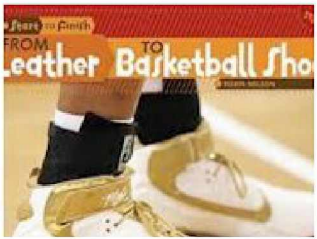


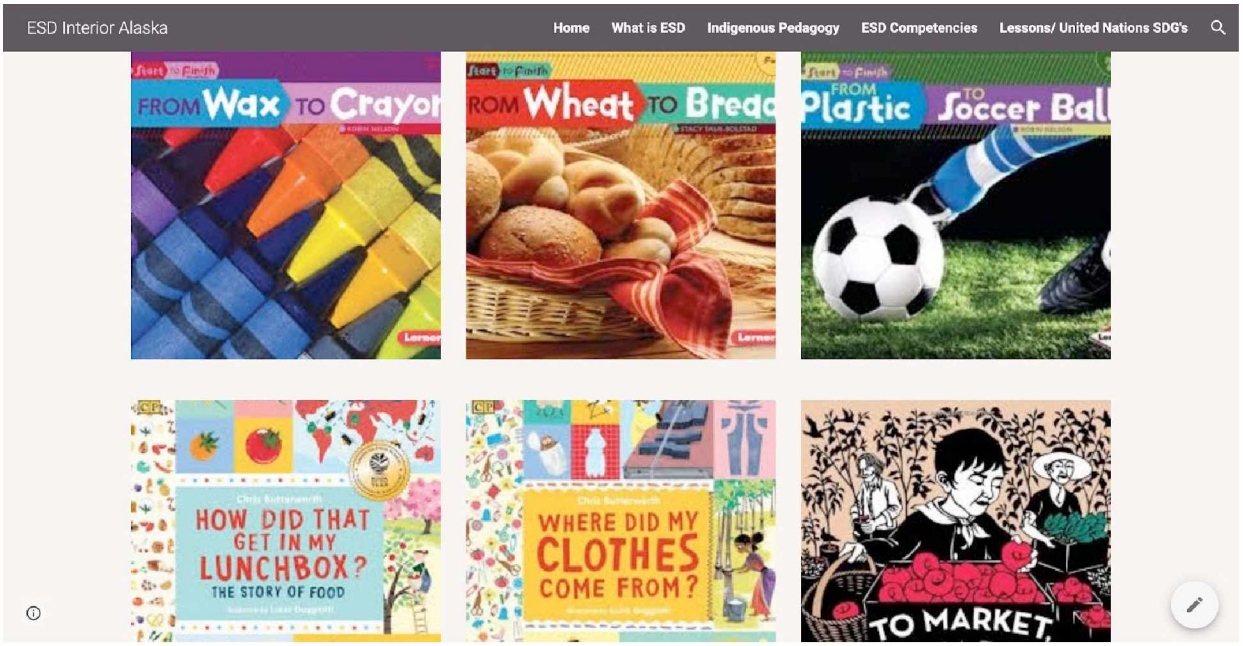











ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
FROM Wax TO Crayon
ROM Wheat TO Bread
FROM Plastic TO Soccer Ball
HOW DID THAT GET IN MY LUNCHBOX?
THE STORY OF FOOD
WHERE DID MY CLOTHES COME FROM?
TO MARKET

13 CLIMATE ACTION

Climate change is a change in average weather patterns observed in a given region over a certain period or time. These patterns include all the elements that we usually associate with the weather, such as temperature, wind and precipitation. Climate change on a word scale, refers to modifications the totality of the planet's climate suffers. In the long term, the speed and scope of climate related changes can have numerous consequences on the ecosystems and on human activities.

Primary Education- Learners develop basic understanding of climate science, including carbon cycles, and of the effects of greenhouse gases and their physical impacts, such as the rise in sea-level and extreme weather conditions. They become aware of climate vulnerability and are able to analyze the impacts of human activities and the consequences of personal actions on climate change. (UNESCO, 2019)

Climate Action Education for teachers in Fairbanks, Alaska

UAF *Arctic and Earth Signs* and NASA offer a course *Change and My community*. This the best way to learn about the effects of climate change in Alaska and the Arctic. Permafrost tunnels, berries, water samples, soil tests, and stories from elders it is all hands on. Having attended in 2018, I experienced what it means to teach about climate change in a hands on and action oriented way. This course braided Indigenous knowledge systems with NASA science, and helps teachers put together authentic experiences for students to engage in climate science and stewardship all year long.

ARCTIC & EARTH STEM INTEGRATING GLOBE & NASA

Website

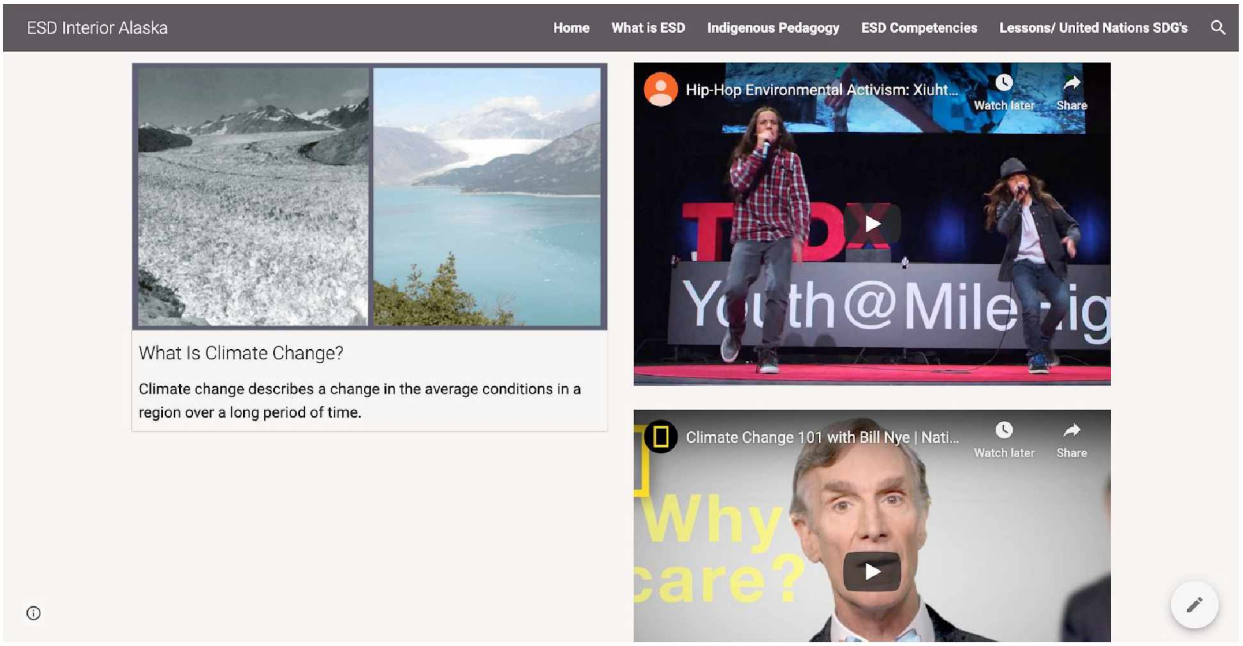
Arctic & Earth SIGNs

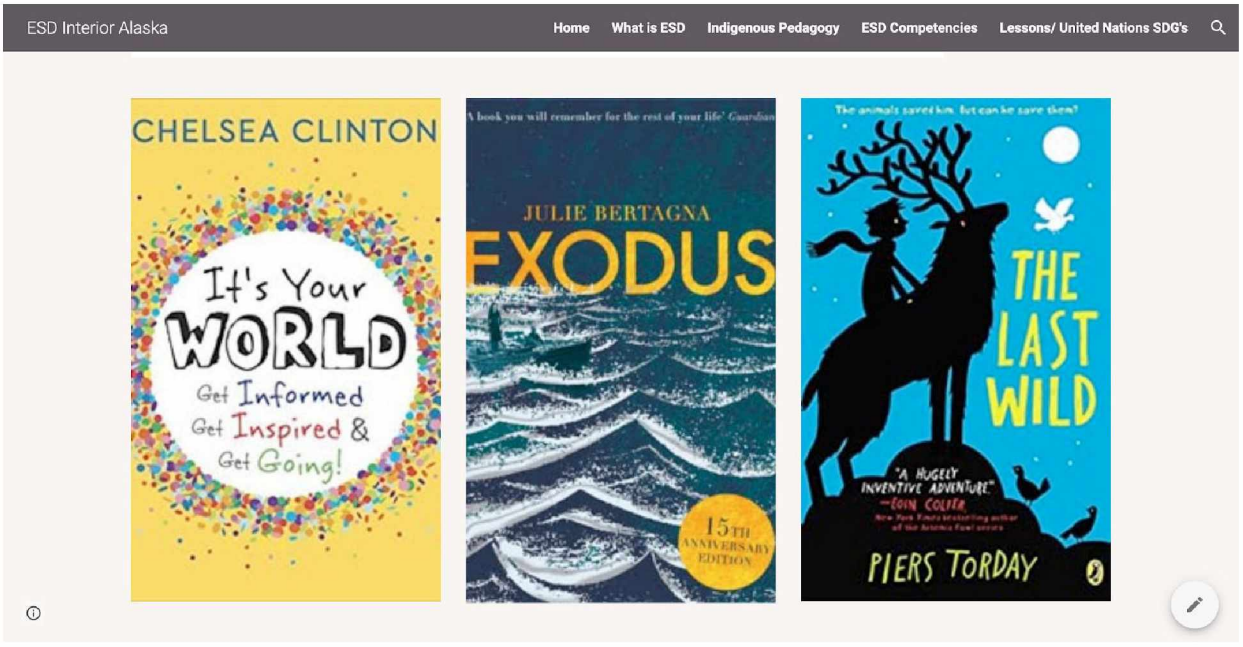
Meet the Greenhouse Gases!

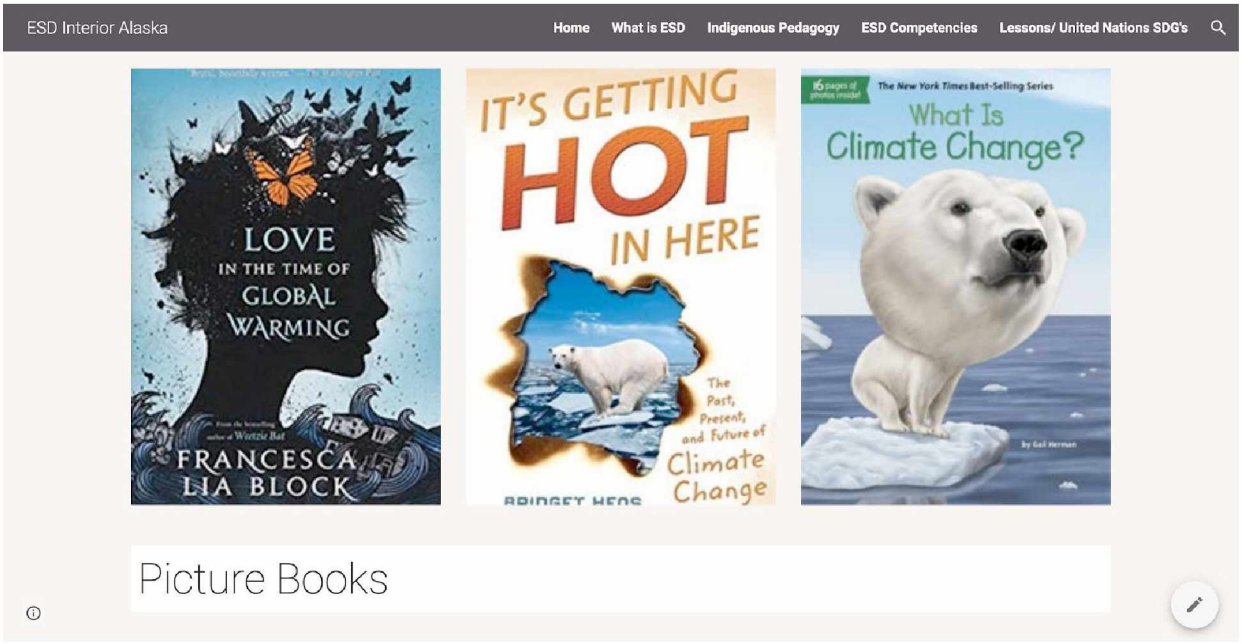
Get to know what's good and bad using these cards.

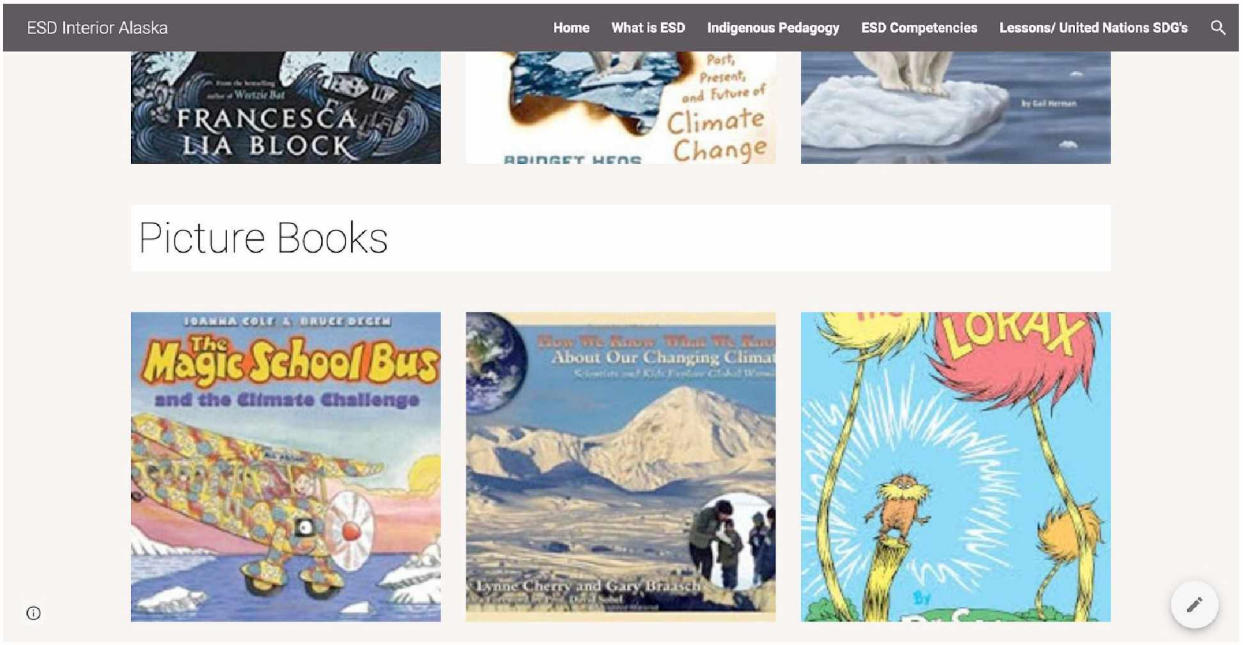
I had my students create their own greenhouse gas superhero cards.

Videos and Website resources


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
What Is Climate Change?
Climate change describes a change in the average conditions in a region over a long period of time.
Hip-Hop Environmental Activism: Xiuht...
Watch later
Share
Climate Change 101 with Bill Nye | Nati...
Watch later
Share
Why
care?


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
CHELSEA CLINTON
It's Your WORLD
Get Informed
Get Inspired &
Get Going!
JULIE BERTAGNA
EXODUS
15TH ANNIVERSARY EDITION
THE LAST WILD
PIERS TORDAY

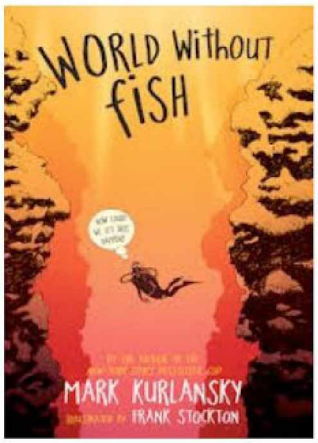

ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
LOVE
IN THE TIME OF
GLOBAL
WARMING
FRANCESCA
LIA BLOCK
IT'S GETTING
HOT
IN HERE
The Past, Present, and Future of
Climate Change
The New York Times Best-Selling Series
What Is
Climate Change?
Picture Books

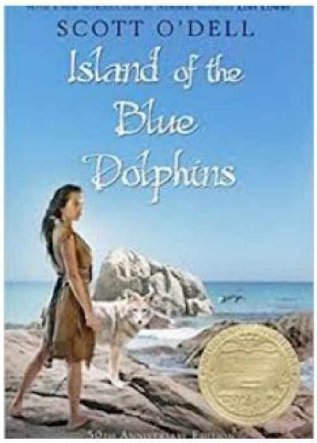

ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
FRANCESCA
LIA BLOCK
Climate
Change
Picture Books
JOANNA COLE & BRUCE DEGEN
The Magic School Bus
and the Climate Challenge
About Our Changing Climat
Lynne Cherry and Gary Braasch
LORAX

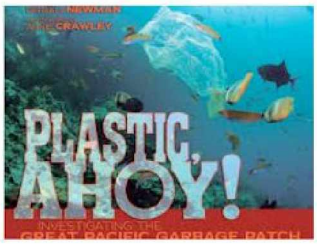
We exploit an ocean resource (whether animal, plant or other) when we profit from it so that we can improve our living conditions. **Sustainable exploitation** is that which satisfies the needs of the present without compromising those of the future generation. (UNESCO, 2019)

Primary Education- Learners are introduced to ocean zones, and marine plant and animals, including their habitats and behaviours. They learn to apply critical thinking skills to investigate threatened or endangered species and may conduct surveys or interviews with fishermen and fish processors to develop potential solutions to the challenges faced, thus developing their self-awareness and bringing about behavioural change towards more sustainable practices during daily life. (UNESCO, 2019)

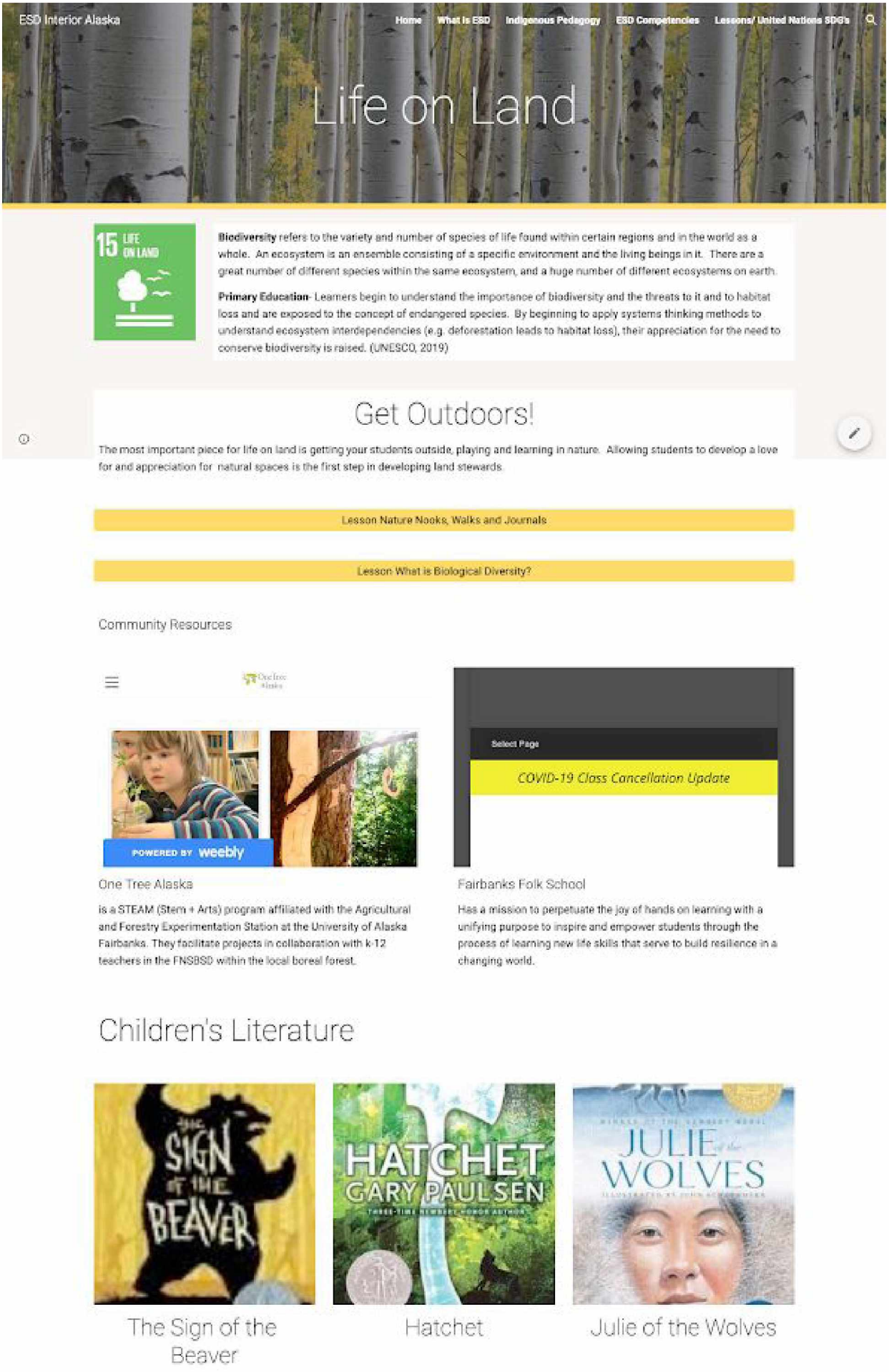
Children's Literature

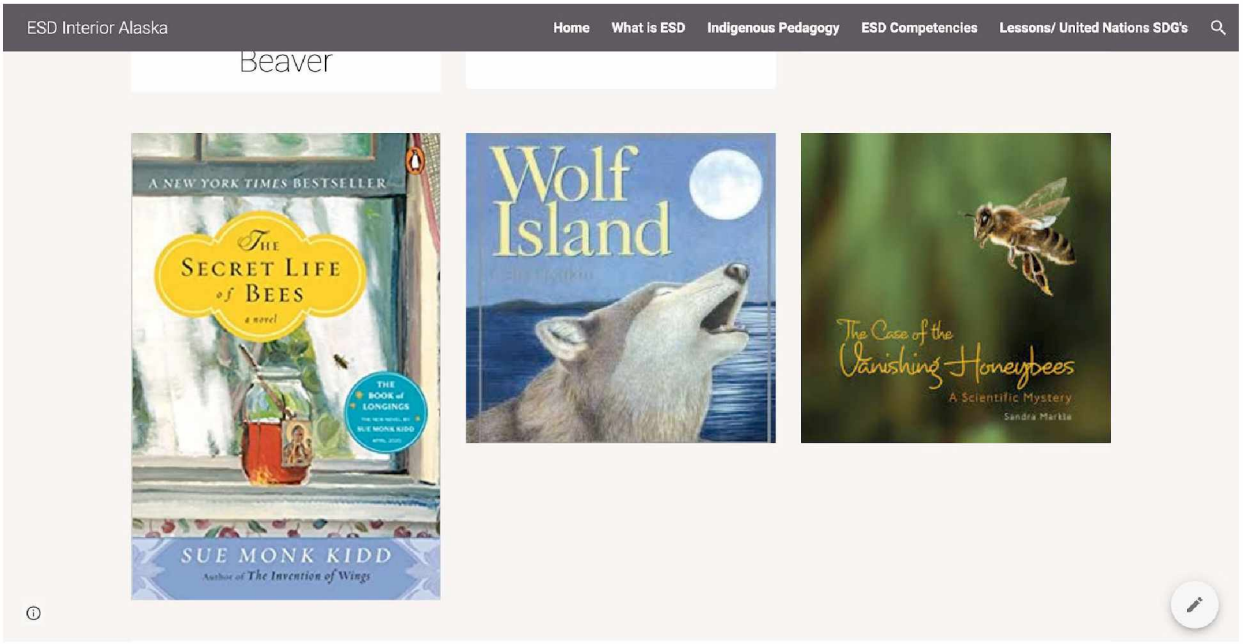


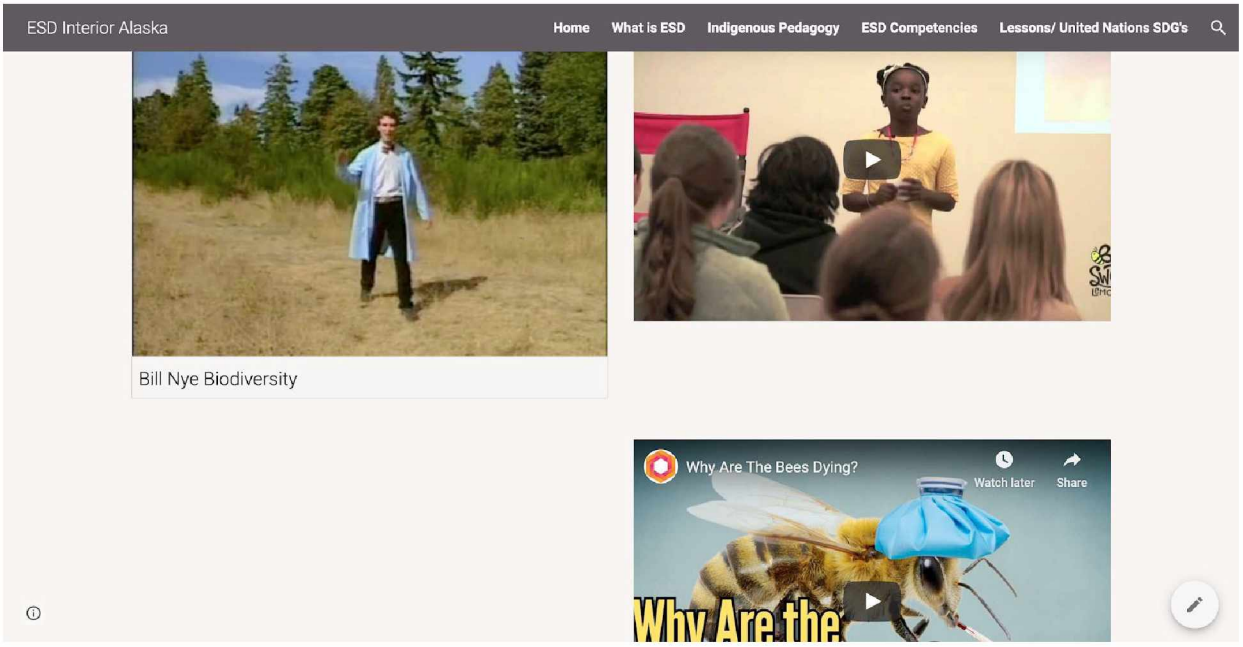




Videos and resources


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
Life on Land
15 LIFE ON LAND
Biodiversity refers to the variety and number of species of life found within certain regions and in the world as a whole. An ecosystem is an ensemble consisting of a specific environment and the living beings in it. There are a great number of different species within the same ecosystem, and a huge number of different ecosystems on earth.
Primary Education- Learners begin to understand the importance of biodiversity and the threats to it and to habitat loss and are exposed to the concept of endangered species. By beginning to apply systems thinking methods to understand ecosystem interdependencies (e.g. deforestation leads to habitat loss), their appreciation for the need to conserve biodiversity is raised. (UNESCO, 2019)
Get Outdoors!
The most important piece for life on land is getting your students outside, playing and learning in nature. Allowing students to develop a love for and appreciation for natural spaces is the first step in developing land stewards
Lesson Nature Nooks, Walks and Journals
Lesson What is Biological Diversity?
Community Resources
POWERED BY weebly
One Tree Alaska
is a STEAM (Stem + Arts) program affiliated with the Agricultural and Forestry Experimentation Station at the University of Alaska Fairbanks. They facilitate projects in collaboration with k-12 teachers in the FNSBSD within the local boreal forest.
Select Page
COVID-19 Class Cancellation Update
Fairbanks Folk School
Has a mission to perpetuate the joy of hands on learning with a unifying purpose to inspire and empower students through the process of learning new life skills that serve to build resilience in a changing world.
Children's Literature
THE SIGN OF THE BEAVER
HATCHET
GARY PAULSEN
JULIE of the WOLVES
The Sign of the Beaver
Hatchet
Julie of the Wolves


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
Beaver
A NEW YORK TIMES BESTSELLER
The Secret Life of Bees
a novel
SUE MONK KIDD
Author of The Invention of Wings
Wolf Island
The Case of the Vanishing Honeybees
A Scientific Mystery
Sandra Markle


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
Bill Nye Biodiversity
Why Are The Bees Dying?
Watch later
Share
Why Are the

Lesson Unit: Sit Spots/Nature Walk/Journaling

Theme: Life on Land, climate action

ESD Competencies:
Systems Thinking

Indigenous Pedagogy-
Earth-based pace
Place-based Knowledge
Close Observation
Silence and Reflection
Experiential learning
Visual/Non Verbal

FNSBSD ELA Standards:
(5)2.1.1, (5)2.1.3, (5)2.1.4, (5)2.2.1, (5)2.2.2, (5)2.2.3, (5)2.4.2, (5)2.6.3,(5)2.3.3,

Essential Goals:
- Cultivate awareness while expanding ones senses and studying patterns of local plants, birds, trees animals, weather, geology etc.
- Enhance observational skills
- Use a nature journal as medium for writing, sketching, reflecting and asking questions.

Essential Questions:
- How does our environment change overtime?
- How does biodiversity affect the ecosystem of our sit spot area?

Materials:
- Nature Journals
- Nature guides (see sit spots for pictures of the books I use)
- Colored Pencils

Assessment:
Stick matching game sketches
Nature journal entries

Duration: One day a week we spend 1 ½ hours either at sit spot, on a nature walk, cross country skiing or snowshoeing. Students will have 1 hour to write in their journals the following day (occasionally we do on site writing or drawing depending on weather and activity)

allison.wylde@k12northstar.org

Lesson Unit: Sit Spots or Nature Nooks

Notes to teacher:

There are numerous advantages to taking your students outside in nature on a cognitive, social and emotional level. Cognitively, especially moments of free an unstructured time, it can boost problem solving skills, focus and self discipline. Socially, it can improve cooperation, flexibility and self awareness. Emotionally, it is relaxing, restorative, and can reduce aggression and increase happiness (Louv, 2006).

Creating a Sit Spot or Nature Nook

Find an area near your school, where students can experience nature, if there isn't a forest available a garden or grass field will work, anywhere where insects climb and birds fly. This is where they will choose a sit spot to observe nature overtime. Students should return to the same spot throughout the year.

At the beginning of the year, set behavior expectations for nature walks.

Expectations: Modify these to fit your classroom and students needs.

- One of my classroom jobs is line leader/line backer (this rotates every 2weeks). On our nature walks students are required to stay in-between the line leader and the line backer. The job of the line leader/line backer is to keep me in sight at all time, for example the leader might stop at a curve in the trail, waiting for all to catch up.
- Students are asked to be good stewards and for the most part leave natural things in place and where they find it, unless we are building something or collecting. Rules vary depending on the type of activity we are doing. Essentially respect nature.
- For nature walks- I ask them to walk, not run, and keep a quiet voice so we can hear, and see wildlife, occasionally they ask to run.
- I do a three warning system. If they reach 3 warnings, then they don't go out for the next walk (This rarely happens)

Consider the following activities for their sit spot.

Sit Spot/ Nature Nook activities

I allow students to pick a spot in the forest beside our school, (within a range, I can see). This will happen at the beginning of the year. Let students know they will visit the same spot all year long to observe changes overtime. Depending on where you are allowing them to build a fort is and incredible experience, working with partners is best.

5 minute silence- At the end of each sit spot activity or free time, students are to find a place to sit/stand get comfortable at least two arms lengths away from any other students. During this time students are to be absolutely silent and take in the sights, sounds, smells around them, make observations about changes to their area, and just find a comfortable space in silence. You may need to practice and work up to the 5 minutes. (If on a nature walk, I still do this activity at the end. Students will find a spot in the general area at least 2 arms lengths away from other students.) The goal is to quiet your mind and focus your senses on nature. Talk about what this means with students. I find that students really come to look forward to and enjoy this time.

Suggested sit spot Activities

- Give your sit spot a name
- Build a fort-(the collaborative nature of this project is amazing)
- Inventory the stuff in your area. First identify 10 most obvious things, then find 20. They can write these things down in their nature journals.
- Build a bug trap- you will need: container (can), and something slightly bigger than the container to cover it, ex. Bark or a row of sticks, a leaf, moss, Use some small sticks to elevate the cover off the ground.
    - Dig a hole the size of container in an area near your sit spot where you think there is a lot of bug traffic. Set container in the hole so it is level or even a hint below level of forest floor. Place cover over pit, slightly elevated, so bugs can crawl under it. The cover should keep out rain and predators. You can put in food (bread?) and water, Remember to check daily.
- Write on a piece of birch bark and attach it to your spot.
- Bring magnifying glasses (encourage students to check out soil), rulers, guide books, nature journals.
- Haiku- Describe your space, or how you feel at the moment in your space. Use show don't tell techniques, with quality words. 5-7-5 syllables. You can also asks students to just write a 3 line poem
- Bring Nature journals or paper and do a scientific sketch of something at their sit spot. (see scientific sketching lesson below)

Lesson Unit: Observing With Your Senses

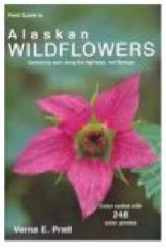
Encourage students to focus on their senses. This work will build up over the year, so I suggest to begin focusing on one sense at a time. Before the 5 minutes silence, gather students and ask them to focus on one sense and ask the following questions:

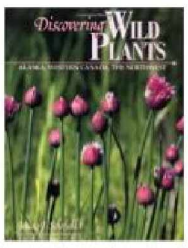
- Touch
  - How does your body feel against the ground?
  - How does the temperature feel, humidity?
  - Feel the sunshine against your closed eyes.
  - Can you feel your heartbeat?
  - Go barefoot, can you feel a variety of temperatures with your feet?
- Hearing
  - What sounds do you hear?
    - Birds, wind, engines
  - What is the quietest sound you can hear?
  - What is the loudest sound?
  - Do you hear multiple sounds at the same time?
  - For each sound make a scribble/line to represent the sound.
  - Can you hear a tree? Put your ear on the trunk.
  - Put your ear to the ground.
- Sight
  - What is your visual field? Take note to your peripheral vision.
  - Take in the larger landscape without looking at anyone thing, notice how your sense of movement becomes sharper doing this.
  - What colors do you see?
  - Do you see any animals, insects, spiders.
  - What do you see at a macro level? What do you see at a larger scale.
- Smelling
  - Can you smell the season, the landscape?
  - Smell the ground, smell a tree.

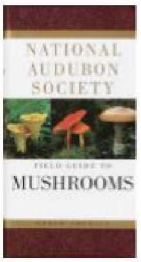
You will also want to build on students awareness and curiosity. This is taking what they see and experience to the next level. Students should

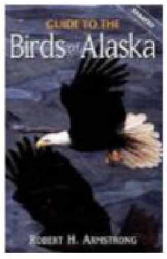
- Take time to watch and note behavior
  - Ex. A Bird, what is it doing?
  - Was it feeding?
  - Was it listening & watching for predators
  - Think about why it is acting a certain way.
  - Make a connections with the bird.
  - This can be done with plants, insects
- Curiosity- Encourage students to ask questions about what they see, hear, feel, touch, smell
- Students should develop a familiarity with what is in their spot.
- Once this is established they should learn more about the species present. Birds, plants, trees, animals etc.

Suggested nature guides









Nature Walks

As a class we spend one day a week 1 ½ hours at our spots, or going on a Nature Walk. When winter comes students walk, snowshoe or ski during this time.

Nature Walk activities:

- Scavenger hunt- Students can work independently or in pairs
  - you can hide objects in a search area before hand- These items can be natural (example woodcarvings, dolls made from bark. Nature art, or man made)

  or
  - Students can look for items in nature: Ex. Find a bird, flower, water, grass, tree, dirt, brown leaf, ant, clouds, rocks, butterfly, bug, spiderweb, fern, bark. See appendix for a worksheet students can carry with clipboard.
- Art projects
  - Students can collect objects for and art projects: leaf rubs, stick animals, making paper, flower rubs, dreamcatchers.
  - They can make nature mandalas with fall colors
  - Nature loom (weave materials together)
- Pond water dip netting
  - Students can collect pond water samples, and look for insects.
  - They can look at pond water under a microscope
- Plant, animal observations
  - Students can just simply observe nature and what it has to offer
  - Bio-blitz- how many species can they find an area

- Mapping
  - Students can create maps of sit spot areas, nature trails, their school yard- this can be done at home with backyards, favorite places
- Planting Trees
  - Students can plant trees in their schoolyard
- Picnic
  - Have a snack or meal outside
- Mushroom hunting
  - Make spore prints (see appendix for directions for spore prints
- Virus or fungus hunting
  - Look for rusts, and fungus on the walk
- Clean up day
  - Wear rubber gloves and collect garbage

Nature Sketching

This is adapted from California Academy of Sciences
https://www.calacademy.org/educators/lesson-plans/introduction-to-scientific-sketching

- Use this slide show to present material to students: https://docs.google.com/presentation/d/1RG0eFjeR6j_Q0XWQOrPETK91TFBhsX34Th401wRzm18/edit - slide=id.p4

Preparation: Have students gather a spruce needle branch during a nature walk, something about the length of their hand.

Introduction:

(slide 1) Explain to students the purpose of a scientific sketching. To capture information for themselves, and communicate information to others. Scientists often sketch when they are doing field research or observing a plant or animal they cannot take back to the lab. Sketches are sometimes more valuable than photographs because they can include specific data that the scientist wants to highlight, as well as their personal observations and questions.

(slide 2) Put students at ease who have difficulty drawing. a scientific sketch is not about making a pretty picture. It's about communicating information. - Explain the difference between "drawing what you see" and "drawing the idea in your head."

(slide 3) Introduce ABCDE model to sketching

- **A-accurate**- describes the true nature of the object, size, shape, texture, etc.
- **B-big**-this is so you can see details, rather than squished in the corner of the page.
- **C-colorful**-when possible, otherwise use words to describe color
- **D-detailed**- Use words and drawing, what makes the specimen distinguishable from others like it. (This will be key in this exercise, as students will exchange sketches and see if they can use the picture to identify the specimen.)
- **E-explained-** Add labels, questions, and conjectures about what you see.

(Slide 4) Students will begin sketching object (spruce branch gathered on nature walk). This will be a step by step process.

(Slide 5) Place your sample on the page. Rather than trace the shape, place little dots at the ends of each needle, to et a general outline of the shape. Remove from page.

(Slide 6) Draw the centerline and connect it to the dots you drew. You don't have to complete all the needles to get a sense of shape

(Slide 7)- When you're ready to add more details, choose an area where something unusual is happening on your sample. Blow it up in a zoom bubble.

[Slide 8]- Remember to include words in your sketch. Labels can indicate size, color, texture etc.

[Slide 8]- include a scientific question. This can start with "I wonder…"

[Slide 9]- Add color to give real life detail

[Slide 10]-Give students 15-30 minutes to sketch. Occasionally remind students to include labels, questions, and color. If students claim to be done early, ask them to deepen their sketch by attending to one of the ABCDE criteria. Remind them another student will need to identify their specimen based on the sketch alone. Give them time reminders.

Stick Specimen Matching Game

Have students gather a stick about the length of their hand during a nature walk

- Using the sketching method ABCDE they previously learned have them sketch their sticks as accurately as possible

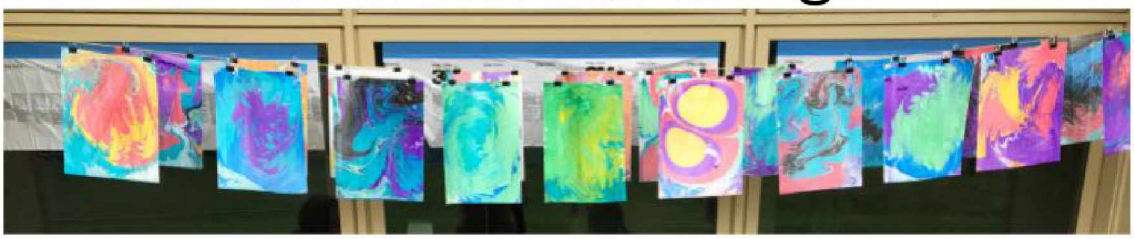
Collect students art work and specimens:

- Spread specimens (sticks) out in a long line on one side of the room, where students can walk in front and pick out a needle.
- Pass out sketches to students, making sure they do NOT get their own sketches.
- Have small groups walk up to specimens and see if they can find the one that matches the drawing they have.
- Continue until all specimens have been selected.
- Have students come up and share their matches. Ask them to describe the aspects of the drawings that gave them a clue.
- Ask classroom if they agree? Identify whose sketch it is, and if it is correct
- Some students may get this wrong, that is okay, work as a group to make corrections.

Closure: Ask students to share what they noticed about the different sketches.

- How did different scientists in our group choose to record information about their specimen?
- What helped you match? What details were important for identifying each specimen?
- How is sketching as a scientist different from or similar to sketching as an artist?

Nature Journaling



The Journal: I have tried a variety of journals over the years. My favorite are the ones students make. I have them marble paper for their covers. Inside I fold about 20 pieces of paper in half and bind it with a coil binding or just staple center. Inside I do a variety of sheets, some with lines and some blank sheets for sketching. I have a section at the top of each sheet for date/ time and temp.

Introduction: The purpose of the nature journal is to keep a place-based record of events, observations, experiences and data collection outdoors. Place is the central them of the journal and the writer will gain a deep awareness of setting, seasons, species and other scientific findings. They can keep a phenology log, develop a field guide for animals, plants, geology and general exploration. I use the journal also as a place for students to reflect on place and make connections to it.

Personal Narrative Journal entry- General experience reflection: Depending on when you do your nature walk, this can happen the same day or the next morning. On the board I brainstorm with students about what they saw and experienced on our nature walk. This helps give students an idea of what to write about. I ask them to think of I wonder questions and make connections. We also record the time, date and temp of the walk in their journals, and then they write. Students are also showed a rubric of how this writing piece is grades. I encourage the 6 traits of writing for this entry (see appendix) I have students save their rubrics in the back of their journals to track growth over time.

Informational Writing-you can have them describe their sit spot or nature nook in detail. They can describe how they built their forts.

The can write an informational page/report in their journal on a species from their sit spot.

Persuasive Writing- They can write an opinion piece about spending more time at a sit spot or preserving nature, or reducing garbage or impacts on the land.

Creative Writing- They can write an imaginative entry about their sit spot where fantasy creatures are involved.

Scientific Sketching- One week instead of writing have them practice a scientific sketch, as weather permits I suggest having them take their journals outside and draw on site. Otherwise, they can carefully select a specimen to bring inside and sketch. Remind them to draw with the ABCDE of sketching (and grade on this criteria)

Nature Art- Have students do leaf rubs, bark rubs and, or branch rubs in their journals

They can do mud fingerprint drawings. Mix a little water with the soil (not too we) print in your book, once dry at limbs, antennas, wings.

Nature Poetry- Write. Haiku or just a 3 lined poem, an acrostic poem, a ballad between two species. Read samples of nature poetry.

Data Collection- They can track berries on a bush and study phenology, use a rain gauge to collect data on rainfall, snow depth etc.

Scavenger Hunt

Name: _____

Directions: Look for the following items, take notes to describe what you see and or where something is in each square. Ex. If you see a bird check of bird and write a description of the bird you see, identify type if possible. If you see water, explain droplet on a leaf.

Tree:	Bird:	Flower:	Water:
Grass:	Insect:	Spider:	Clouds:
Rock:	Spiderweb:	Fern:	Worm/ caterpillar/ or centipede:
Seed:	Something man made:	Moss or lichen:	Evidence an animal was present:
4 different leaves: Leaf 1:	Leaf 2:	Leaf 3:	Leaf 4:

Name:	Journal Date:	
Nature Journal Rubric (Personal Narrative)		
Mastered	Progressing	Needs practice
Presentation and Organization-Your handwriting is neat. You've put a lot of pride into your writing. Your illustration is carefully detailed and, represents experience. Date/Time/Temp is included. Clear and interesting beginning, middle and end 5pts	Your handwriting is adequately neat, but there is room for improvement. Your illustration is thoughtful, but lacks detail. Has a beginning, middle and end. 3pts	Your handwriting is quite sloppy and difficult to read. Illustration is rushed or incomplete. Does not have. A clear beginning, middle and end. 2pts
Writing Techniques- Wrote a hook or lead, uses sensory details, figurative language, awesome adjectives, -ly words, and vivid verbs. Your piece is long enough and includes detailed descriptions 10pts	Your writing has some details, but could use more. Sensory details and vivid language is lacking. You did not meet length requirement. 8pts	There are few details included in your work. You have not used sensory imagery, and the piece is too short. 5pts
Personal Connections- You have included personal connections that are relevant to the experience, and go beyond simply retelling events. Use an I wonder statement or express curiosity. 10 points	You writing shows some thoughtful reflections, but is mostly just an account of the experience. 8pts	Your entry shows little thought or is not relevant to the experience. 5 pts
Editing- There are few mechanical errors (spelling, punctuation, capitalization) in your writing, but they are on more difficult words, or not too distracting. 5pts	There are several mechanical errors (spelling, punctuation, capitalization), but the entry is still easily readable 3 pts	There are numerous mechanical errors (spelling, punctuation, capitalization) that make reading the entry difficult. 2 pts

Name:	Journal Date:	
Nature Journal Rubric (Personal Narrative)		
Mastered	Progressing	Needs practice
Presentation and Organization-Your handwriting is neat. You've put a lot of pride into your writing. Your illustration is carefully detailed and, represents experience. Date/Time/Temp is included. Clear and interesting beginning, middle and end 5pts	Your handwriting is adequately neat, but there is room for improvement. Your illustration is thoughtful, but lacks detail. Has a beginning, middle and end. 3pts	Your handwriting is quite sloppy and difficult to read. Illustration is rushed or incomplete. Does not have. A clear beginning, middle and end. 2pts
Writing Techniques- Wrote a hook or lead, uses sensory details, figurative language, awesome adjectives, -ly words, and vivid verbs. Your piece is long enough and includes detailed descriptions 10pts	Your writing has some details, but could use more. Sensory details and vivid language is lacking. You did not meet length requirement. 8pts	There are few details included in your work. You have not used sensory imagery, and the piece is too short. 5pts
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Name:	Journal Date:	
Nature Journal Rubric (Informational Writing)		
Mastered	Progressing	Needs practice
Facts and citations- Well Researched and has plenty of facts about species. Captures unique characteristics and includes at least 3 citations. 5pts	Facts- Researched, but only used a few resources, Report could use more detail to capture the depth of the species. 3pts	Needs more research and References are not mentioned. 2pts
Text features- Used text features: headings and scientific sketch. The text features help readers learn more about topic. 10pts	Used limited text features or the text features do not closely relate to topic 8pts	Didn't use text features 5pts
Vocabulary- Used vocabulary words and definitions that show the author is and expert on the topic 10 points	Used limited vocabulary words or did not include definitions. 8pts	Did not use vocabulary words and definitions. 5 pts
Edited- spelling reflects editing and only has grade level mistakes. Punctuation is correct. 5pt	Writing includes errors that should have been edited. Basic punctuation is incorrect 3 pts	Writing has many spelling and punctuation errors. 2 pts

Name:	Journal Date:	
Nature Journal Rubric (Informational Writing)		
Mastered	Progressing	Needs practice
Facts and citations- Well Researched and has plenty of facts about species. Captures unique characteristics and includes at least 3 citations. 5pts	Facts- Researched, but only used a few resources, Report could use more detail to capture the depth of the species. 3pts	Needs more research and References are not mentioned. 2pts
Text features- Used text features: headings and scientific sketch. The text features help readers learn more about topic. 10pts	Used limited text features or the text features do not closely relate to topic 8pts	Didn't use text features 5pts
Vocabulary- Used vocabulary words and definitions that show the author is and expert on the topic 10 points	Used limited vocabulary words or did not include definitions. 8pts	Did not use vocabulary words and definitions. 5 pts
Edited- spelling reflects editing and only has grade level mistakes. Punctuation is correct. 5pt	Writing includes errors that should have been edited. Basic punctuation is incorrect 3 pts	Writing has many spelling and punctuation errors. 2 pts

Name:	Journal Date:	
Nature Journal Rubric (Opinion Writing)		
Mastered	Progressing	Needs practice
Opinion Hook/lead- Clearly stated an opinion on a topic, and wrote a lead that is interesting and grabs the readers attention. 5pts	Had an opinion, but was not clear. Wrote a lead 3pts	Piece is not an opinion essay and does not include a lead 2pts
Reasons/Examples- Entry includes at least 3 different reasons that supports opinion and includes examples to help explain each reason 10pts	Entry included one or two reasons, with examples to explain each reason 8pts	Didn't use reasons and examples that support the oppinion 5pts
Writing techniques- Uses sufficient transition words, uses plenty of vocabulary words and quality adjectives, vivid verbs, -ly words. Has a clear and interesting beginning, middle and end. 10 points	Used limited vocabulary and basic word choice. Had Beginning middle and end 8pts	Did not use vocabulary words and definitions. Basic word choice, does not have a clear beginning, middle and end. 5 pts
Editing- Spelling reflects editing and only has grade appropriate errors, punctuation is used correctly. 5pt	Writing includes errors that should have been edited. Basic punctuation is incorrect 3 pts	Writing has many spelling and punctuation errors. 2 pts

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Nature Journal Rubric (Opinion Writing)		
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Editing- Spelling reflects editing and only has grade appropriate errors, punctuation is used correctly. 5pt	Writing includes errors that should have been edited. Basic punctuation is incorrect 3 pts	Writing has many spelling and punctuation errors. 2 pts

Name:	Journal Date:	
Nature Journal Rubric (Creative Writing)		
Mastered	Progressing	Needs practice
Character Development- Includes a main character and secondary characters that were developed with lots of details. 5pts	Included only a main character or characters need to be more developed 3pts	Does not include secondary character and main character needs to be further developed. 2pts
Setting Development- Uses "show don't tell" strategies to describe features of the setting. Features are from our nature walks. 10pts	Includes description of the setting from our nature walks. 8pts	Does not include details from the setting, or is not from our nature walk 5pts
Problem and Solution Includes a problem, suspense and a solution to the problem. 10 points	Includes a problem and a solution. 8pts	Does not include a solution to the problem 5 pts
Editing/ organization There are few mechanical errors (spelling, punctuation, capitalization) in your writing, but they are on more difficult words, or not too distracting. Interesting beginning middle and end 5pts	There are several mechanical errors (spelling, punctuation, capitalization), but the entry is still easily readable Has a beginning, middle and end 3 pts	There are numerous mechanical errors (spelling, punctuation, capitalization) that make reading the entry difficult. Not organized in a beginning, middle or end 2 pts

Name:	Journal Date:	
Nature Journal Rubric (Opinion Writing)		
Mastered	Progressing	Needs practice
Opinion Hook/lead- Clearly stated an opinion on a topic, and wrote a lead that is interesting and grabs the readers attention. 5pts	Had an opinion, but was not clear. Wrote a lead 3pts	Piece is not an opinion essay and does not include a lead 2pts
Reasons/Examples- Entry includes at least 3 different reasons that supports opinion and includes examples to help explain each reason 10pts	Entry included one or two reasons, with examples to explain each reason 8pts	Didn't use reasons and examples that support the oppinion 5pts
Writing techniques- Uses sufficient transition words, uses plenty of vocabulary words and quality adjectives, vivid verbs, -ly words. Has a clear and interesting beginning, middle and end. 10 points	Used limited vocabulary and basic word choice. Had Beginning middle and end 8pts	Did not use vocabulary words and definitions. Basic word choice, does not have a clear beginning, middle and end. 5 pts
Editing- Spelling reflects editing and only has grade appropriate errors, punctuation is used correctly. 5pt	Writing includes errors that should have been edited. Basic punctuation is incorrect 3 pts	Writing has many spelling and punctuation errors. 2 pts

ESD Interior Alaska

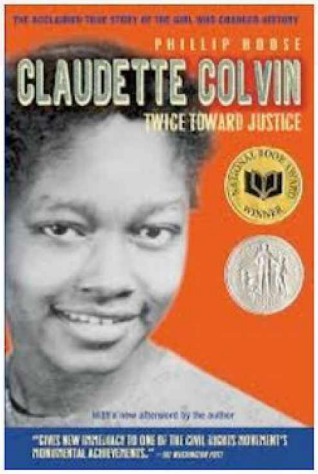
Home What is ESD Indigenous Pedagogy ESD Competencies Lessons/ United Nations SDG's

Peace, Justice and Strong Institutions

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

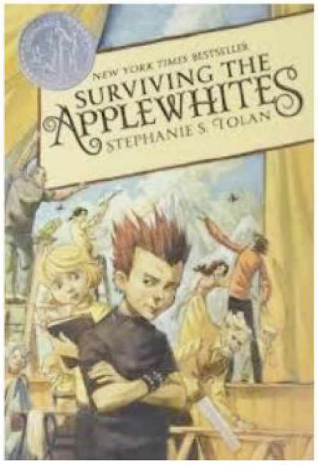
Peace is the lack of conflict and the absence of violence between heterogeneous social groups. **Justice** refers to two things: the notion of giving to everybody what they have the right to: and the organization of human beings to ensure that: judges, lawyers, ministries of justice and tribunals, are impartial.\

Primary Education- Learners are exposed to the vast diversity of religious and ethnic identities, learners understand the need for mutual respect and understanding at the global level. They learn to weigh up the value of wisdom from different sources, to express insights in response, and to agree or disagree respectfully as a means to participate responsibly in society. (UNESCO, 2019)



Claudette Colvin: Twice Toward Justice

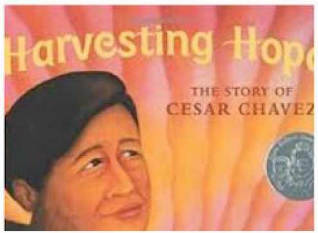
recounts the experience of Claudette Colvin in Montgomery, Alabama during the Civil Rights Movement.

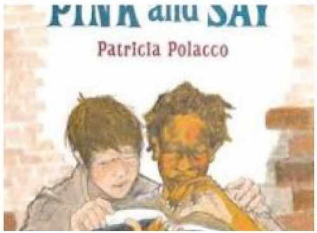


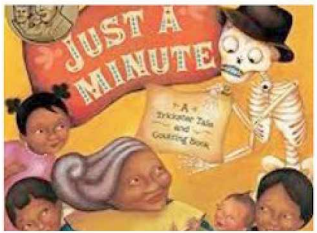
Surviving the Applewhites

Is the story of thirteen year old Jake Semple who after accidentally burning down his school, had been forced to live with an eccentric artist family to avoid being sent to a juvenile detention center.

Picture Books







17 PARTNERSHIPS FOR THE GOALS

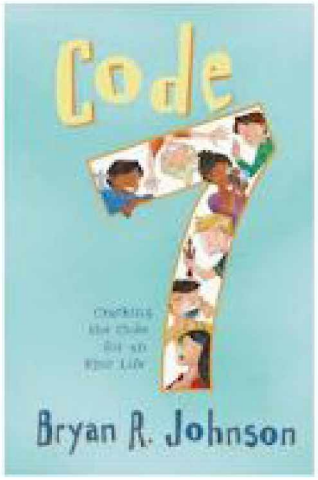
A **partnership** is an arrangement where parties agree to cooperate to advance in their mutual interests.

Primary Education- Learners involve in creative collaboration through working in teams designing mini projects that support better partnerships later in life. Learners communicate their ideas, listen to and work with others to solve problems, thus showing sensitivity to others' needs and feelings. (UNESCO, 2019)

33 Awesome Team-Building Games and Activities for Kids

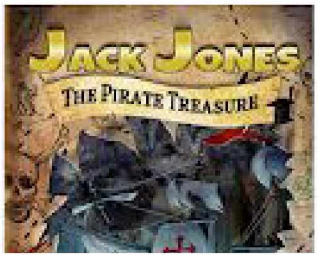
Fun ways for students to learn valuable skills like cooperation and communication.

Childrens Literature



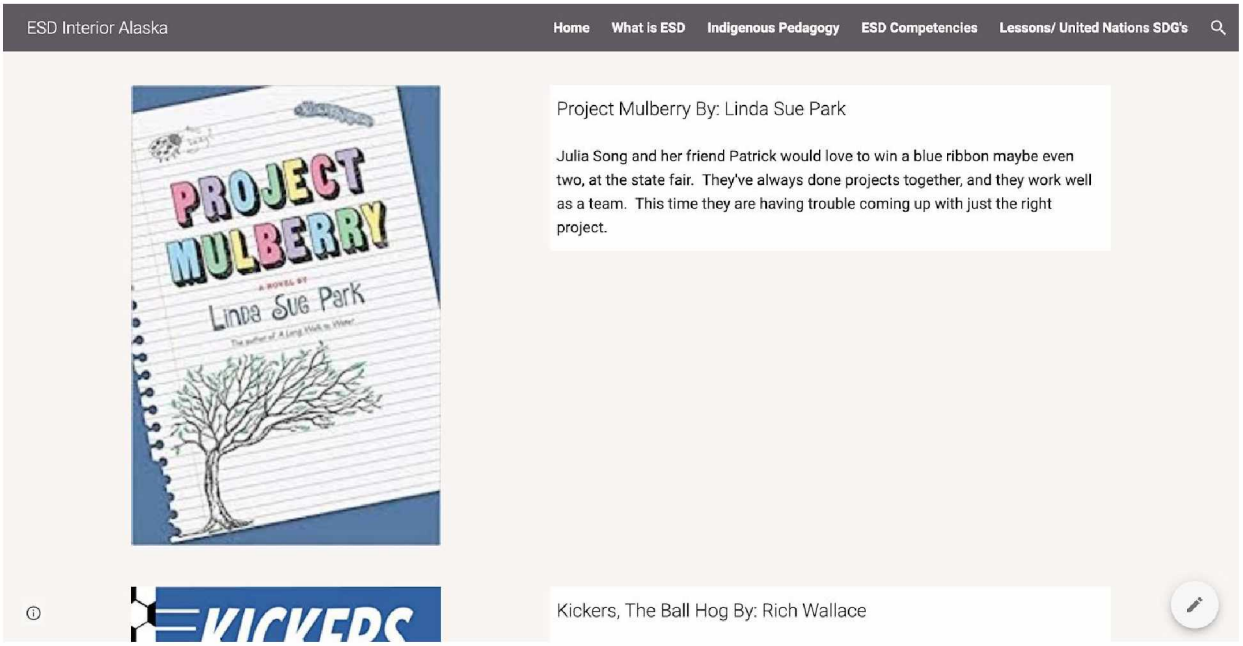
Code 7 By: Brian R Johnson

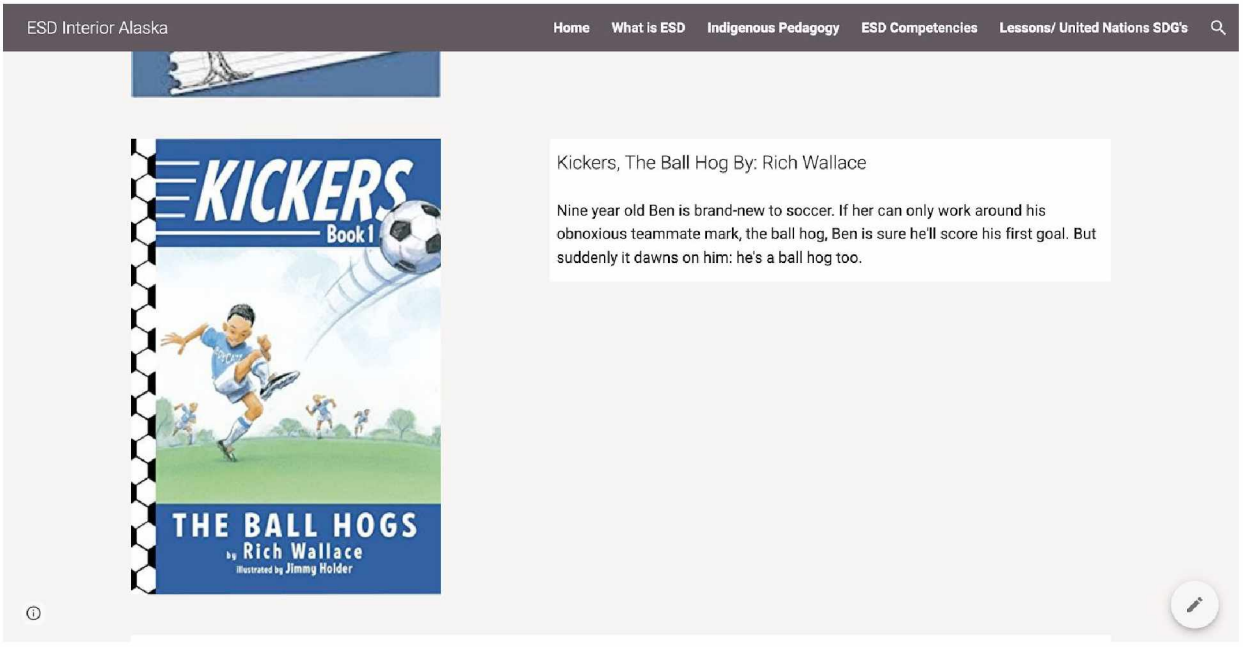
Life at Flint Hill Elementary School may seem normal, but seven friends find themselves on a path to crack the code for an epic life. Whether they're chasing their dreams on stage, searching for an elusive monster fish, or running a makeshift business out of a tree house, can these heroes find a way to work together to change their community?

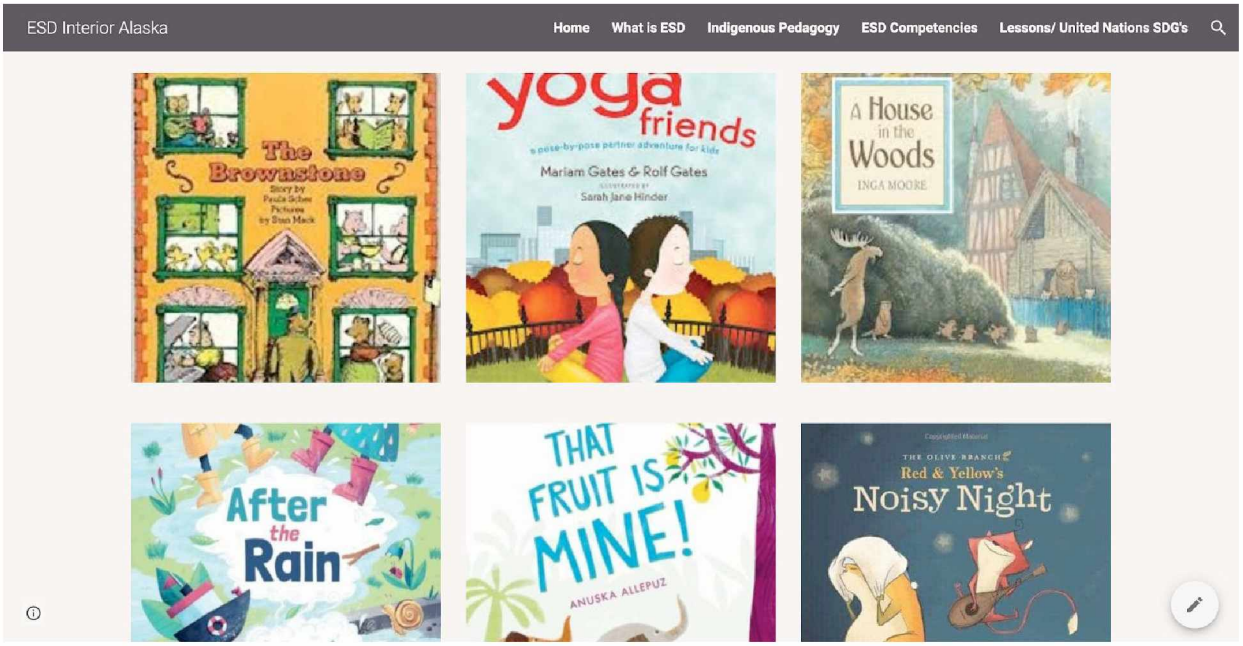


Jack Jones,The pirate Treasure By: Zander Bingham

Join Jack the Jones club and come along with Jack, Emma and Albert as they harness the power of friendship, teamwork and practical thinking to solve pirate riddles, search for an ancient galleon and work to uncover the secret location of a shipful of priceless treasure thought to be lost forever.


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
PROJECT MULBERRY
Linda Sue Park
Project Mulberry By: Linda Sue Park
Julia Song and her friend Patrick would love to win a blue ribbon maybe even two, at the state fair. They've always done projects together, and they work well as a team. This time they are having trouble coming up with just the right project.
Kickers, The Ball Hog By: Rich Wallace


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
KICKERS
Book 1
THE BALL HOGS
by Rich Wallace
Illustrated by Jimmy Holder
Kickers, The Ball Hog By: Rich Wallace
Nine year old Ben is brand-new to soccer. If her can only work around his obnoxious teammate mark, the ball hog, Ben is sure he'll score his first goal. But suddenly it dawns on him: he's a ball hog too.


ESD Interior Alaska
Home
What is ESD
Indigenous Pedagogy
ESD Competencies
Lessons/ United Nations SDG's
The Brownstone
yoga friends
Mariam Gates & Rolf Gates
Sarah Jane Hinder
A House in the Woods
INGA MOORE
After the Rain
THAT FRUIT IS MINE!
ANUSKA ALLEPUZ
Red & Yellow's
Noisy Night